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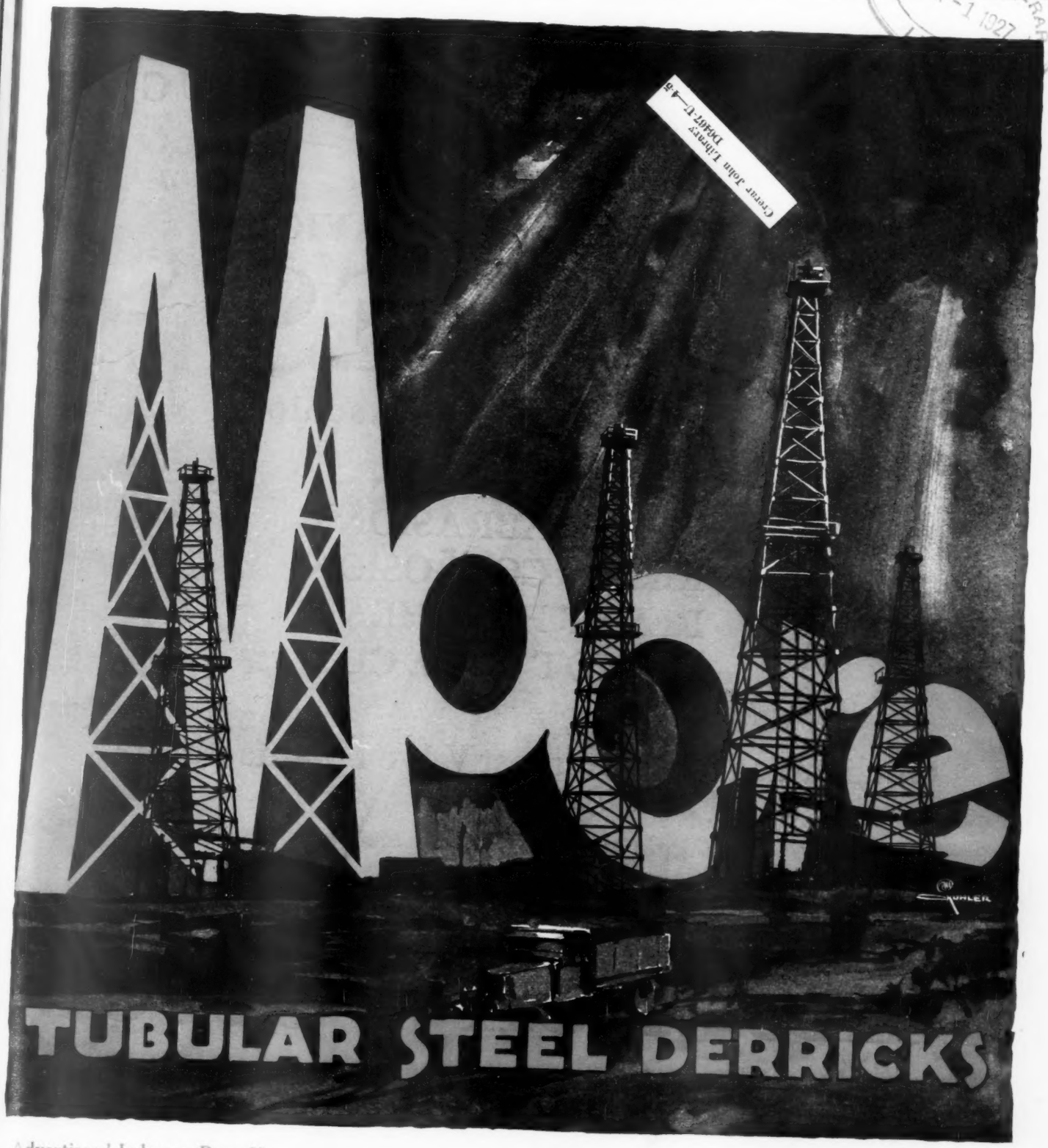

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The Oil and Gas Journal

PRODUCING REFINING MARKETING

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Production Marks Time; Gains in Sight

Highest daily average estimated production in 1926, week ended Dec. 25, 2,385,139 bbls. Lowest in 1926, January 30, 1,915,960 bbls.

South Seminole and Seal Beach Fields Big Factors. Small Producers Face Difficult Situation

By Andrew M. Rowley

Highest daily average estimated light oil production in 1926, week ended Dec. 25, 1,797,349 bbls. Lowest in 1926, Jan. 30, 1,371,600 bbls.

Crude oil production in the United States "marked time" during the past week but a continuance of the march upward already is beginning and the peak of output for the whole country has not been reached, by any means. The Seminole area in Oklahoma continues to flood the Mid-Continent with high gravity crude and while this output is being utilized by refiners as fast as it can be procured, approximately 150,000 bbls. a day of crude is being stored in Oklahoma and Kansas at this time. The south section of Seminole shows indications of constantly mounting production, the output there now averaging around 38,000 bbls. daily from 12 wells with a number of other wells approaching the pay sand. It is expected gains from that area will be large and will be felt within the very near future.

California probably will record further increases in production with the Seal Beach section an important factor. Action by pipe line companies in refusing to make definite contracts to handle the production in new areas there may aid the general situation and prevent promiscuous drilling until conditions warrant drilling.

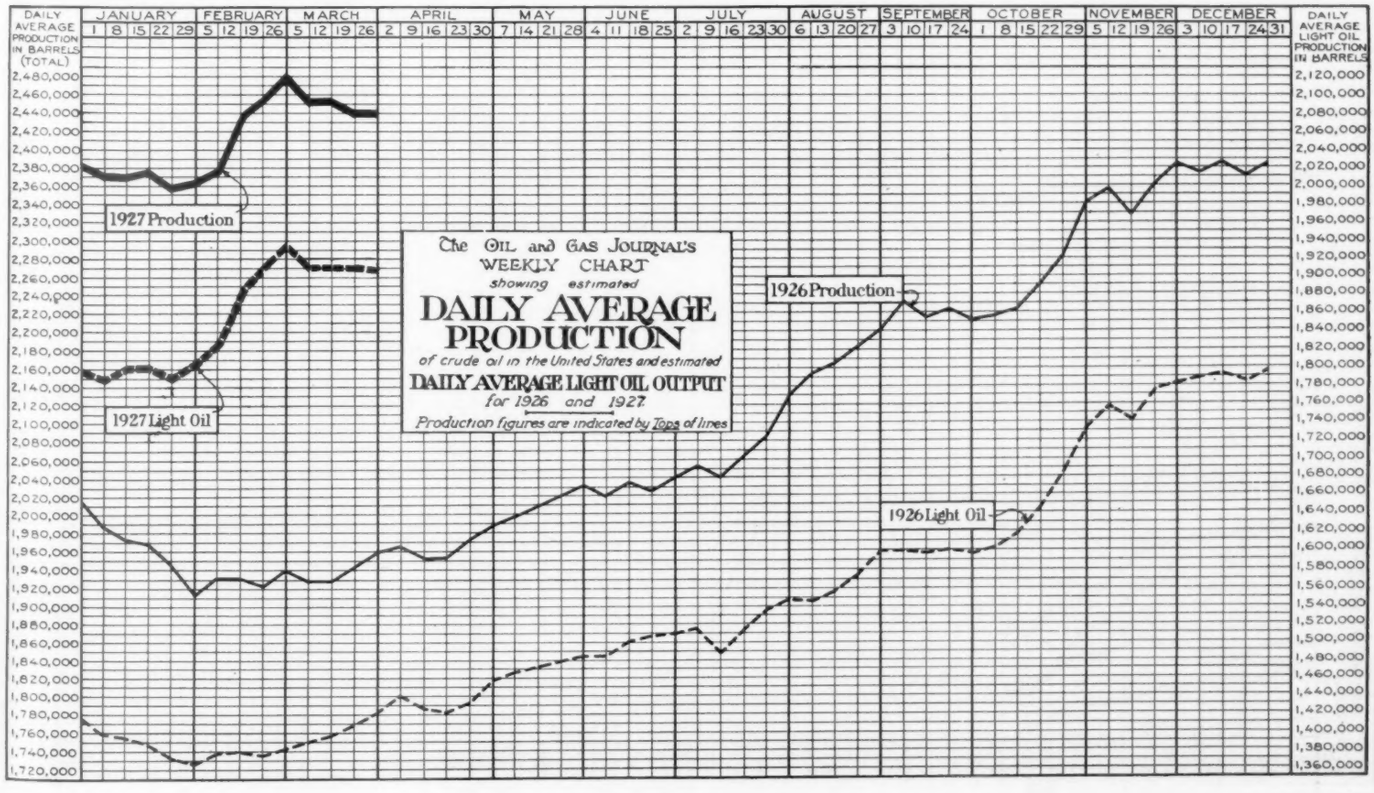
There is little doubt the industry is in for a fairly long period of overproduction. Low prices for crude oil already are having the effect of curtailing operations in old settled areas where a big flush production cannot be expected. The operator with a small production is having great difficulty in keeping his properties on production as the price of crude, in many cases, is below the lifting cost and operations are being carried on at a loss. Just how long such a condition can continue is problematical. It may result eventually in the sale of many small producing properties to companies better able financially to keep these properties, generally regarded as the backbone of the industry, in operation. When it is considered there are 30,000 wells in Oklahoma whose total production averages less than 2 bbls. per well per day and 20,000 with a total output averaging less than 1 bbl. per well per day, it is seen easily it is not profitable to operate these properties.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended March 26, and a comparison with the previous week follows:

	Mar. 26		Mar. 19	
Oklahoma—	Light	Heavy	Light	Heavy
Tonkawa	24,235	.....	24,640	.....
Burbank	45,915	.....	47,530	.....
Other Osage Fields	35,210	.....	35,220	.....
Cushing and Shamrock	21,205	.....	21,265	.....
Bristow and Eastern Bristow	27,285	.....	27,290	.....
Cromwell	13,440	.....	13,605	.....
Garber	17,615	.....	17,830	.....
Blackwell-Braman	14,285	.....	14,580	.....
Seminole	318,210	.....	309,335	.....
Wewoka	17,670	.....	18,280	.....
Northern Miscellaneous	110,035	.....	109,060	.....
Southern Fields	66,690	.....	68,410	.....
Total Oklahoma	711,795	.....	707,045	.....
North Louisiana	40,490	10,610	40,425	9,295
Arkansas	25,775	98,230	25,925	99,005
North Central and West Texas	251,300	.....	250,420	.....
Texas Panhandle	120,580	.....	124,480	.....
East Central Texas	39,722	.....	40,160	.....
Kansas	115,710	.....	115,920	.....
Total Mid-Continent Area	1,305,372	108,840	1,304,375	108,300
Gulf Coast	.....	153,837	.....	153,758
Southwest Texas	.....	37,220	.....	37,225
Eastern	105,000	.....	105,750	.....
Rocky Mountain Area	88,310	.....	91,395	.....
California—				
Santa Fe Springs	44,500	.....	44,500	.....
Long Beach	92,500	.....	92,500	.....
Torrance	6,000	19,000	6,000	19,000
Huntington Beach	75,000	.....	74,000	.....
Dominguez	18,000	.....	18,500	.....
Rosecrans	11,500	.....	11,500	.....
Inglewood	24,500	13,500	24,500	13,500
Ventura Avenue	49,500	.....	50,000	.....
Seal Beach	32,500	.....	32,000	.....
Remainder of State	59,000	200,000	58,000	200,000
Total California	413,000	232,500	411,500	232,500
Total United States	1,911,682	532,397	1,913,020	531,783
Grand Total	2,444,079		2,444,803	

→ **Total Decrease, 724 Bbls.; Light Oil Decrease, 1,338 Bbls.** ←



Domestic Gasoline Grades Advance

Oklahoma Market Responds With Slightly Higher Prices to an Improved Demand. Gas Oils Weak

By C. O. Willson

For the second time this year a slight strengthening in gasoline prices developed during the past week at Oklahoma (Group 3) refineries. Sufficient buying developed to bring about a ¼-cent advance in the 58-60 U. S. Motor grade, with the higher gravity grades holding to the prices of the previous week. Even natural gasolines were aided by this wave of buying, and instead of the customary weekly price decline, an advance of ¼ cent developed in Grade C, with other grades generally firm. The natural gasoline market was especially active the fore part of this week.

Outside of gasoline, however, the market trend was downward where any price changes were recorded. Gas oils led the price slump in the heavier products with a reduction for the week which totaled ½ cent. Fuel oils are also 2½ to 5 cents a barrel lower.

The slump in gas oil, which applied to the North Texas and Kansas markets as well as Oklahoma, is explained as a development of the much-heralded shutdown of cracking plants. The actual shutdown of cracking plants to date in these three refining areas has not materially added to the amount of material being offered the trade by refiners. However, the buyers apparently believe that lower prices are assured and refused to purchase during the past week unless they were given price concessions.

Although not as great as in the case of gas oils, all grades of distillates also declined. There is very little demand for these products, and the refiners who continue to make the product are faced with a buyers' market.

The demand for kerosene was fairly active during the past week, and sellers had little trouble in maintaining the prices of the previous week. Refiners with their own bulk and service stations report a very satisfactory retail demand in the middle western states. This is due to the spring activity on the farms. Many sellers believe this demand will push kerosene back to the 5-cent level by the first of April. Several buyers, on the other hand, are predicting a slump in kerosene quotations so that the 41-43 grade will be available around 4 cents. The next 10 days should determine whether or not the increase in buying from the Mid-Continent areas will be of sufficient volume to maintain a firm or advancing market during April.

REFINED MARKET BAROMETER

California was the only weak spot in the gasoline market during the past week. A price war in the Los Angeles area brought an additional 2-cent reduction in tank-car prices at refineries, with slightly lower export quotations. Outside of the west coast area, gasoline prices for the first time in several weeks were generally firm, with higher prices in effect on the principal domestic grades in the Mid-Continent area. Fuel oils continued firm in the coastal areas, but the price trend at other refineries was downward. Gas oils experienced a rapid price slump in the Mid-Continent. Kerosenes did not develop any general price changes. Distillate prices were lowered in several areas. Natural gasolines did not improve outside of Mid-Continent, where heavier buying aided some grades. Scattering reductions on some grades of lubricants were reported. Wax prices were reduced in all areas.

Mid-Continent—Domestic gasoline grades higher in all areas. High gravity gasolines firm. No change in natural gasoline. Gas oil prices lower except North Louisiana and Arkansas, where demand from rice fields held market firm. Fuel oil prices lower in all areas, with greatest reduction in North Texas. Lubricants steady. Wax prices lower.

Atlantic Seaboard—Gasoline and fuel oil prices firm. Colder weather had aided kerosene and distillate demand. Wax prices lower, although some improvement was noted in the export movement. In export market, good movement of cased goods.

Pennsylvania—Gasoline situation improved. Kerosene demand slow. No change in fuel oil. Cylinder stocks unchanged. Bright stocks weak. Neutrals strong.

Chicago—Gasoline situation encouraging to refiners. Kerosene prices unchanged. Gas oils weak. Other products unchanged.

California—Price war brings 2-cent reduction in gasoline prices at refineries. Natural gasolines also lower. Present gasoline prices lowest in years. No important changes in other products.

Gasoline Slower

Gasolines were not so active on Monday and Tuesday of this week as from Wednesday to Friday of the previous week. The wave of buying of last week brought 58-60 U. S. Motor from a low of 6¼ cents to 6½ cents. Little or no material was available under 6½ cents the first of this week, and many sellers who had sold at that figure advanced their quotations to 6¾ or 7 cents.

The slow-up in buying on Monday and Tuesday indicated that many jobbers had covered their immediate requirements and are now staying out of the market with the hope that the U. S. Motor market will react to the 6 or 6¼-cent level. Just what will happen is obviously dependent on how long the lull continues. The refiners generally are taking a more optimistic attitude toward the gasoline market than they were two weeks ago, and with much of the "distress" material absorbed in the buying of the previous week, they will be slow in lowering their present quotations. This situation applies especially to the U. S. Motor grade. There has been little demand for the higher gravity grades, although a 2,000,000-gallon purchase of 64-66 375 last week by the Atlantic Refining Co. in the North Texas area was reflected in a

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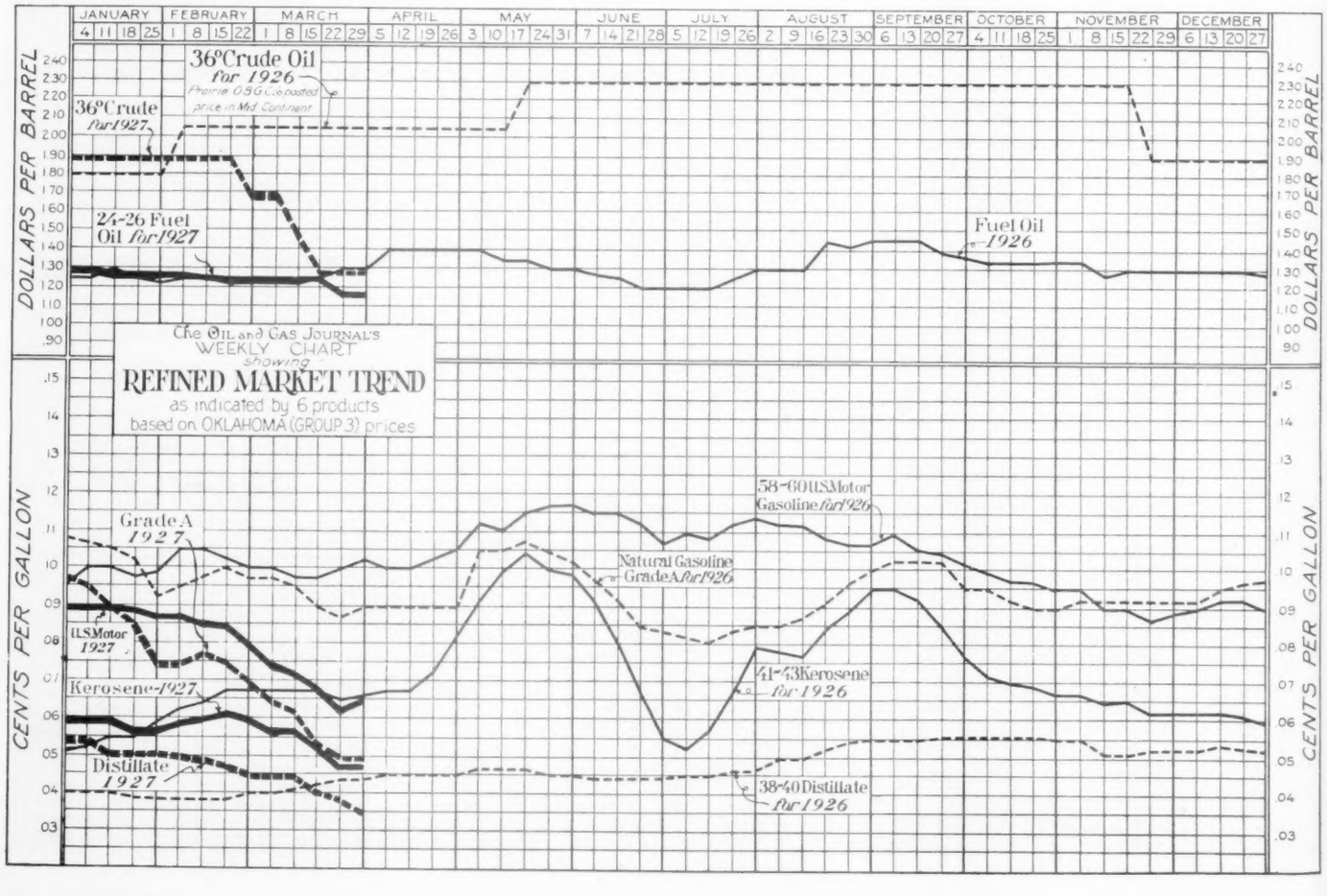


California Production Trend Upward

Output Expected to Temporarily Reach Close to 700,000 Bbls. Pipe Lines May Refuse Seal Beach Production

By L. P. Stockman

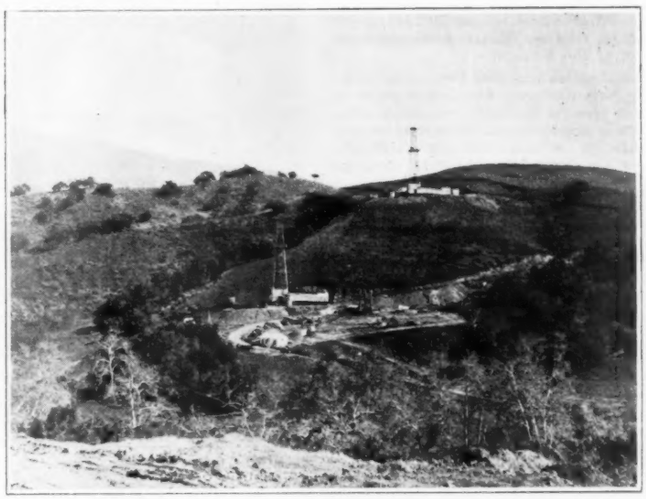
LOS ANGELES, Calif., Mar. 28.—Although the daily average production of crude oil in California during the month of February was 8,885 bbls. under that for January this decline is merely a lull before the storm, as present indications point to a resumption of the upward trend which started with development work in the town lot area at Huntington Beach during the summer of last year. This field, reflecting the intensive drilling undertaken at that time, reached the peak on January 1, 1927, and it has since declined from the high of 105,000 bbls. daily to around 75,000 bbls. per day. This represents a settling in the daily output of approximately 30,000 bbls. during the past three months and, while production in this field will undoubtedly continue to fall off from time to time, the drop from now on will be considerably smaller than that which has just taken place.

For more than a year previous to the development of production in the town lot area, Huntington Beach had been consistently averaging around 45,000 bbls. per day and it is believed that the future settled production of the entire field, including the town lot area, will be somewhere around 55,000 bbls. daily. In other words, Huntington Beach will probably decline around 15,000 or 20,000 bbls. per day between now and the end of the year. The potentiality of the town lot area now being developed along the ocean front between Ninth and Sixteenth Streets and adjacent to the original townsite is still undetermined although it appears quite probable that commercial production will be secured in a part of this district. The day of large wells, however, in the entire town lot area is passed and, while future completions might temporarily arrest the decline from time to time, the trend is definitely downward.

Seal Beach Field

The Seal Beach Field, which looked for some time as though it would be controlled by the Marland, Standard and Associated because of their concentrated holdings, was extended approximately a mile westward by the Pan American during the latter part of February and the completion of a 2,500-bbl. well by this company opened up a town lot area for development and incidentally resulted in the influx of numerous operators into this new highly productive area. This district was intensely subdivided and, while it was not restricted against the drill, the immediate section to be developed lay within the corporate limits of the city of Long Beach and certain requirements had to be met before drilling was started.

The City Council of this municipality temporarily held up work by requiring operators to file notice of intention to drill five days previous to the granting of building and drilling permits with the further stipulation that work was to be of a continuous nature. The result was that construction work was retarded and some 50 or 60 drilling projects were sent on their way simultaneously. This means that barring the development of mechanical trouble somewhere around 50 wells will come into production within a short time of each other. The effect which this condition will have on state production is obvious. This field is at the present time making approximately 35,000 bbls. a day but it appears quite probable that production may approach the 100,000-bbl. mark unless restrictive measures are taken. This does not mean, of course, that the Seal Beach Field will continue to produce at the 100,000-bbl. rate for any considerable period of time as it is hardly likely that the town lot section being intensely developed in the extreme western part of the field will hold up indefinitely.



View of California's newest field opened by E. J. Miley at Goleta, 13 miles west of Santa Barbara. The discovery well, No. 2 Goleta, in the foreground, is doing 450 bbls. of 43.6 gravity crude, making it the largest producer of high gravity crude in the State. No. 1, on top of the hill, is drilling.

Production Outlook

It is absolutely impossible at the present time to accurately determine the peak production of Seal Beach as this figure is dependent upon the size and productivity of the town lot area now being drilled up. There are about 25 wells situated between the Pan American's extension well, a producer flowing 2,400 bbls. daily, the older section of the field and practically all of these drillers are assured of production since this intervening area was proven up by the Pan American's outpost. Much depends upon the attitude of pipe line companies with respect to future production in this area, and while a few contracts have been made here and there covering anticipated production from several potential producers, there has not been any general scramble for this oil up to the present time, notwithstanding the fact that it is of a good grade. If the marketing companies proceed with caution and refuse to contract or handle this oil the situation will automatically take care of itself as producers will be unable to market their production and will of necessity be obliged to close in their wells, or at least curtail production until conditions improve. Up to the present time the Pan American is the only company to extend its pipe line facilities into this new town lot area and for this reason it will be interesting to watch the action of other companies. The California Petroleum, Julian Petroleum, Richfield and General Petroleum will probably also extend their pipe line facilities into this section in order to handle their own production, but it is unknown just what position each will assume with respect to the oil produced by independent operators and subject to purchase by any one in the open market.

Rapid Drilling of Wells

One of the most interesting features in connection with the development work under way at Seal Beach is the rapidity with which wells are being drilled. Exceptionally fast progress was made in the erection of derricks and the installation of drilling equipment in this area immediately following the granting of permission to go ahead and, in view of the necessity of reaching the pay early in the game, it is hardly necessary to say that some new drilling records are being hung up. The completion of a 4,750-foot well in approximately six weeks seems hardly possible of fulfilment but nevertheless this record will undoubtedly be equalled by several operators. At the present time the Pan American and Paul Getty are engaged in a rather spirited race down to the pay and it will be interesting to watch the outcome, which should be decided some time within the next week or ten days. The peak at Seal Beach from a development standpoint should be reached along about the end of May, although of course a considerable number of completions will have been recorded previous to that time.

Four or five weeks ago the production situation in California looked far more threatening than it does at the present time as conditions have shown somewhat of an improvement during the intervening period. Failure of the Julian Petroleum to find oil in its wildcat at Potrero has temporarily removed the threat in this direction and, while production may eventually be secured in that district, it cannot possibly jeopardize conditions within six or eight months. As the matter stands at present this potential field can temporarily be eliminated from consideration as it is hardly likely that the Associated will resume work on its wildcat which has been standing cemented for several months in an untested oil sand. Other drilling in this area has so far proven unproductive and, while the California Eastern is making preparations to suspend operations south of the Associated's test and swing northward, this new wildcat will require several months of work before the pay could possibly be reached. Production in the Ventura Avenue Field has been consistently declining at a slow rate during the past several weeks but, since there are some

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INCREASED WILDCATTING COST DUE TO DEPTH AND PROTECTION

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

Under the stimulation of the drive for new oil production, wildcatting methods have undergone a drastic change the past two years, vitally affecting the economic situation. It is now recognized in some quarters that not alone is the plentiful supply of crude oil attributable to results accruing from feverish wildcatting but that the methods which have developed to take care of the relatively great cost of such wildcatting constitute to a great extent an economic boomerang and in the long run are proving costly to the industry.

Probably the actual well cost in drilling dry holes last year amounted to between $375,000,000 and $500,000,000. Some years ago the cost of dry holes could be figured fairly accurately as the amount spent for equipment and drilling, and the lease expenditures, while substantial, were relatively small as entering into the cost of producing crude oil.

Under methods that have developed recently, however, lease expenditures have mounted to tremendous figures, this not only applying to land in proven territory but also to wildcat territory. It is obvious that the industry has to bear the burden of this expense throughout, and that, as applied to wildcat area, it has to stand the greater loss entailed if drilling proves a territory unproductive. In other words, to the actual well cost in drilling dry holes there is now added the considerable loss represented by money paid for the acreage.

Two important factors that have entered into the change in wildcatting methods are (1) the large cost of drilling a well, due in part to the greater depth to which wells are being drilled, and (2) desire for protection acreage.

To take care of the cost of drilling a wildcat well and as a protection against the hazard involved, the system of paying for the well out of the sale of acreage has developed and is now largely prevalent. A few years ago the larger companies did not go in for this method, but under the pressure of the financial burden involved by carrying on a far-flung wildcat campaign and under the necessity of protecting themselves as to acreage in case of successful operations, they have done so on a large scale.

In a word, a system of financing wildcatting out of acreage has grown up. In the case of the dry hole, the company having the original acreage which it sells in part to take care of the cost of the well, gets out without a loss, but the loss is there. This loss naturally goes into the cost of crude and with it additional losses entailed in the purchase of acreage around the dry hole.

Last year the largest number of oil and gas wells in the history of the industry was completed since 1920. The total was 29,319, and of this number 7,965 were dry holes, or 27.2 per cent. This is the largest percentage of dry holes ever recorded. In 1925, total completions were 25,623, of which 6,735 were dry holes, or 26.3 per cent. The previous high percentage was 24.1 in 1923, and during the eight years pre-

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Geologists Hold Greatest Gathering

Tulsa Meeting Largest in History of the A. A. P. G.—Three Cities Vie for 1928 Convention

By James McIntyre

The largest assemblage of petroleum geologists in the history of the oil industry was attracted by the twelfth annual convention of the American Association of Petroleum Geologists in Tulsa March 23-26.

The association's yearly meetings have been growing in size with the passing of years, just as the membership and the influence of the association have been on the ascendancy, but the fact that the meeting was held in Tulsa, the heart

—Photo by Rivkin.
LUTHER H. WHITE
Vice President

of the American petroleum industry, together with the fact that the members residing in Tulsa worked harmoniously and with a will to make the convention the greatest gathering of oil geologists, had much to do with the immense crowd in attendance. Many of the members were accompanied by their wives or other female members of their family, and the ladies of the party enjoyed the gathering fully as much as the men, as special provisions were made for their entertainment.

G. Clark Gester, chief geologist of the Standard Oil Co. of California, was unanimously chosen as president for 1927. Luther H. White, chief geologist of the J. A. Hull Oil Corp., Tulsa, was elected vice president and David Donoghue, chief geologist of the Texas Pacific Coal & Oil Co., Fort Worth, Tex., was elected secretary and treasurer. John L. Rich, geologist of Ottawa, Kans., was re-elected editor of the Bulletin.

Los Angeles, and San Francisco, Calif. and New Orleans, La., each made a strong plea for the 1928 convention. No selection was made at the convention, although it seemed that the California cities are favored for the next meeting.

Entertainment Features

The entertainment features of the convention were up to the usual high standard set by the association, but the attendance was so large that the banquet feature had to be divided and three dinners were held simultaneously, the membership being assigned according to their college affiliations. Thus there was an Eastern and Big Ten Group; a Mississippi Valley group and a Rocky Mountain and Western group. Graduates of foreign universities, of which there are many in the association, were made a part of the last named group. The vaudeville show, "The Rock Hound Revue," was given Friday night by excellent talent made up of Tulsans. It was presented in the Akdar Theater, where every seat was occupied.

Annual Business Meeting

A business meeting of the association was held on Friday afternoon at which resolutions extending thanks to the Tulsa Chamber of Commerce, the Tulsa Geological Society and others who had contributed to the success of the convention. Minor changes in the constitution were made. The offices of vice president, secretary-treasurer and editor were changed to first, second and third vice president, respectively. Changes were made in the manner of electing officers. Dues of associate members were increased from $8 to $10 a year and students were given the privilege of receiving the Bulletin at the rate of $8 per year by being enrolled as student members. The association was given authority to reinstate members who have been dropped for nonpayment of dues.

On the recommendation of the new president, Dr. Charles E. Decker, of the University of Oklahoma, who for 10 years served as secretary-treasurer of

DAVID DONOGHUE
Secretary-Treasurer

the association was made an honorary member of the association.

Paleontologists Organize

The paleontological section of the association held separate meetings during the convention at which many papers were read and discussed which bore on their specialized branch of the profession. It was the first meeting of its kind in the association annals. The paleontologists organized by the election of Dr. J. J. Galloway, professor of paleontology at Columbia University, as president; D. D. Hughes of the Marland Oil Co., vice president; Marcus A. Hanna, Gulf Oil Corp., secretary and treasurer and Dr. Joseph A. Cushman, consulting paleontologist of Sharon, Mass., editor of The Journal of Paleontology.

Association Financially Strong

M. M. Valerius of Tulsa, chairman of the general arrangements committee on the convention presided at the opening public session on Wednesday morning in the Crystal Ball Room of the Mayo Hotel. He introduced A. L. Beekly, president of the Tulsa Geological Society who gave the address of welcome, which was followed by that of Harry Halley, Tulsa city attorney on behalf of Mayor Newblock. The response was made by President A. W. McCoy, president of the American Association of Petroleum Geologists.

President McCoy's annual report reviewed the work of the association in the past year, which included the employment of a full-time business manager, J. P. D. Hull, and the selection of Tulsa as the headquarters of the association. Several cities had made bids for the honor of being the association's headquarters agreeing to guarantee any deficit the association might meet in establishing this new feature of associational work. Tulsa was finally chosen, but will not be called upon to meet a deficit as the association's finances have shown a growth in the past year.

Fritz L. Aurin, secretary treasurer, after stating that most of the detail work of his department had been done by Business Manager Hull, read a statement which showed that the society had a cash balance in banks of $12,081 as against $9,218 a year ago and that it owned $17,400 in securities which, together with a savings account fund, gave the association a balance at the close of its fiscal year of $29,810 in round numbers. The gain in membership this year was 166 and there are 181 applications for membership on file.

The report of John L. Rich the association's editor in chief, also credited Business Manager Hull as having accomplished much of the detail work on the association's bulletin and credited the regional editors with valuable co-operation throughout the year.

Officers Nominated

The nomination of officers for the coming year resulted in placing on the ballot the names of G. C. Gester of San Francisco, Calif., for president; C. Max Bauer of Amarillo, Tex. and Luther White for vice president; David Donoghue of Fort Worth, Tex., and Marvin Lee of Wichita, Kans., for secretary-treasurer and Wilbur A. Nelson of Charlottesville, Va., John L. Rich of Ottawa,

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PART OF THE RECORD-BREAKING ATTENDANCE AT TWELFTH ANNUAL CONVENTION

Efforts for Relieving Oil Situation

Experience of Other Industries Points Way. Not Necessary to Await Decline in Production

By N. O. Fanning
New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Mar. 26. — It is considered a sad commentary on the stability of the petroleum industry that in an era of several years of nationwide prosperity, the industry should suddenly find itself plunged into a period of abnormally low crude oil prices, with the statements of leading oil men indicating that no immediate relief can be expected, in view of the outlook for continued overproduction.

The present situation in the oil industry (now that it has definitely developed so that all are aware of its significance) is being ascribed to a misjudged price policy, but there are still many who believe that the general level of crude oil prices was fixed in accordance with current conditions relating to the law of supply and demand, and that the oil industry cannot be blamed or cannot blame itself, if certain areas proved more productive than was anticipated.

If the only relief possible can now be obtained by a partial cessation of wildcatting and drilling operations, a great hardship is going to be forced temporarily on an important branch of the oil industry. Some leading oil men hope that the efforts of all branches of the industry combined will result in changing the situation for the better much sooner than is now expected, and that no one particular branch will be made to suffer too severely.

In the light of present circumstances, it is timely to point out that the oil industry's future is closely bound with that of the industrial welfare of the country in general, and that the problems of the oil industry in some respects are parallel to those of other industries which have been met and at least partially solved. Then, again, the oil industry has its own peculiar problems which are admittedly more difficult of solution than those met in other industries.

General methods of overcoming a situation such as the oil business is now facing are easily set forth. The problem resolves itself down to an adjustment of income and expense as related to the particular branches of the business, so that an equal share of the burden of expense is shouldered by each, and an equitable share of the profit is also received by each. This problem is indeed intricate when applied to an industry so large and with so many ramifications as the oil industry, but it is by no means impossible of solution.

Equitable Balance

An equitable balance between income and expense throughout the industry, as evenly as possible, distributed over a long period, means stability. The oil business must profit in order to exist. But it does not necessarily have to prosper unduly at one period and suffer excessive losses at another, unless it can be proved that the industry is subject to forces beyond the control of the men who are engaged in it, in which case any effort to control it must be futile.

It is obvious at present that a strict curtailment of crude oil production would constitute a quick method of restoring the price of crude to a higher level. However, the possibility must also be taken into account that if production has advanced beyond control, it can as easily be reduced beyond control, provided too firm a leash is applied. Admitting that the first step toward improvement lies in curtailing the production of crude oil, there still are left other corrective measures, which can be briefly discussed here.

The secret of profit in the oil business as a whole lies between the income received from the sale of all refined products, and the cost of producing crude petroleum. One evident manner in which the oil industry can equalize its burden is to reduce costs all along the line. In reducing the price of crude petroleum, the cost of crude oil to the refiner is reduced, but not necessarily the cost of producing crude oil. If the price of crude oil is, therefore, reduced to a point benefiting the refiner, it may still mean that the producer is bearing the loss.

Reducing Costs

The average producer of crude petroleum has made rapid strides in recent years in reducing the average cost of crude petroleum, although all producers cannot obviously benefit equally. It must be recognized that benefits must accrue largely to those making the sacrifices. The policy of buying acreage in large blocks, joint operation of pools, improved methods of crude oil recovery and other steps taken by many companies have tended toward this end. Offsetting this, of course, is the excessive recovery of crude oil in some of the flush pools, forcing a storage burden at heavy expense on the producers and buyers of crude oil.

In the transportation branch of the oil business, as applied particularly to crude oil, the industry has evidently secured about as economical operation as possible.

In refining, the industry has made a mistake, if there is as great an overproduction of gasoline now as recent statements indicate. It was obviously uneconomic to go to the expense of producing gasoline by means of "cracking" when sufficient could be obtained through ordinary and comparatively inexpensive distillation. Indications are that some refiners are correcting this mistake by reducing "cracking" operations.

Marketers of oil have also learned some lessons in recent years. The policy inaugurated by some companies of owning and operating their own service stations proved uneconomic in sections where land costs, taxes and labor were high. It proved that the advantages of this policy in other than economic respects were offset by the fact that motorists buy small amounts at scattered stations, rather than all or most of their requirements at one, unless it be at the garages in which they keep their cars. Trucking companies, furthermore, began to buy gasoline in tank car lots and supplied their own trucks, so fas as possible, from their own distributing plants. It can be said that the practice of direct gasoline selling has not, on the whole, proved a financial success, al-

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A. A. P. G. Convention Sidelights

By J. L. Dwyer

The twelfth annual convention of the American Association of Petroleum Geologists held last week in Tulsa, Okla., was extremely difficult to report. When you wanted to find anyone, he was sure to be in one of the meetings instead of enjoying the convivial atmosphere of a suite of rooms where one usually goes to obtain the low-down on conventions.

There were many interesting sidelights on the convention, and one of the stellar performers was a gentleman from a small town in Oklahoma who had a magnetic needle of his own invention.

There never was a rockhound's convention that didn't harbor a forked stick witch or else a doodle-bug, and the gentleman from the small town filled the bill on this occasion.

With a bevy of maps, which bore out his contention that his line of reasoning was faultless, the old man presented a present-day version of the famous utterance, "Thar's gold in them hills." Maps he had by the dozen explaining the possibilities of various spots in Oklahoma which contained oil and only required the efforts of the driller to establish his fame. Questioned about the origin of his theory, the old gentleman explained that it started when he discovered certain signs of magnetic attraction in his own anatomy. His maps outlined the potential menaces to the crude market which were drawn solidly in black, and what he termed the "leads," were small creeks of oil running from one pool to another. The leads, according to his theory, were 7 feet wide, and with an assurance which could only come from a most sincere conviction, he claimed that his system was infallible.

Present-day applications of science are inclined to brand as very ridiculous the theory which the old gentleman has evolved, and yet as one geologist mentioned when he turned away, suppose that 10 years ago some member of the association had proposed the use of the siesmograph or the torsion balance, what kind of a reception would he have been accorded?

It might be well to remember that almost anything is possible in oil.

David Donoghue, from Fort Worth, Tex., as usual was chairman of the story-telling committee, and for fear of a run on the fund, he brought his Oklahoma

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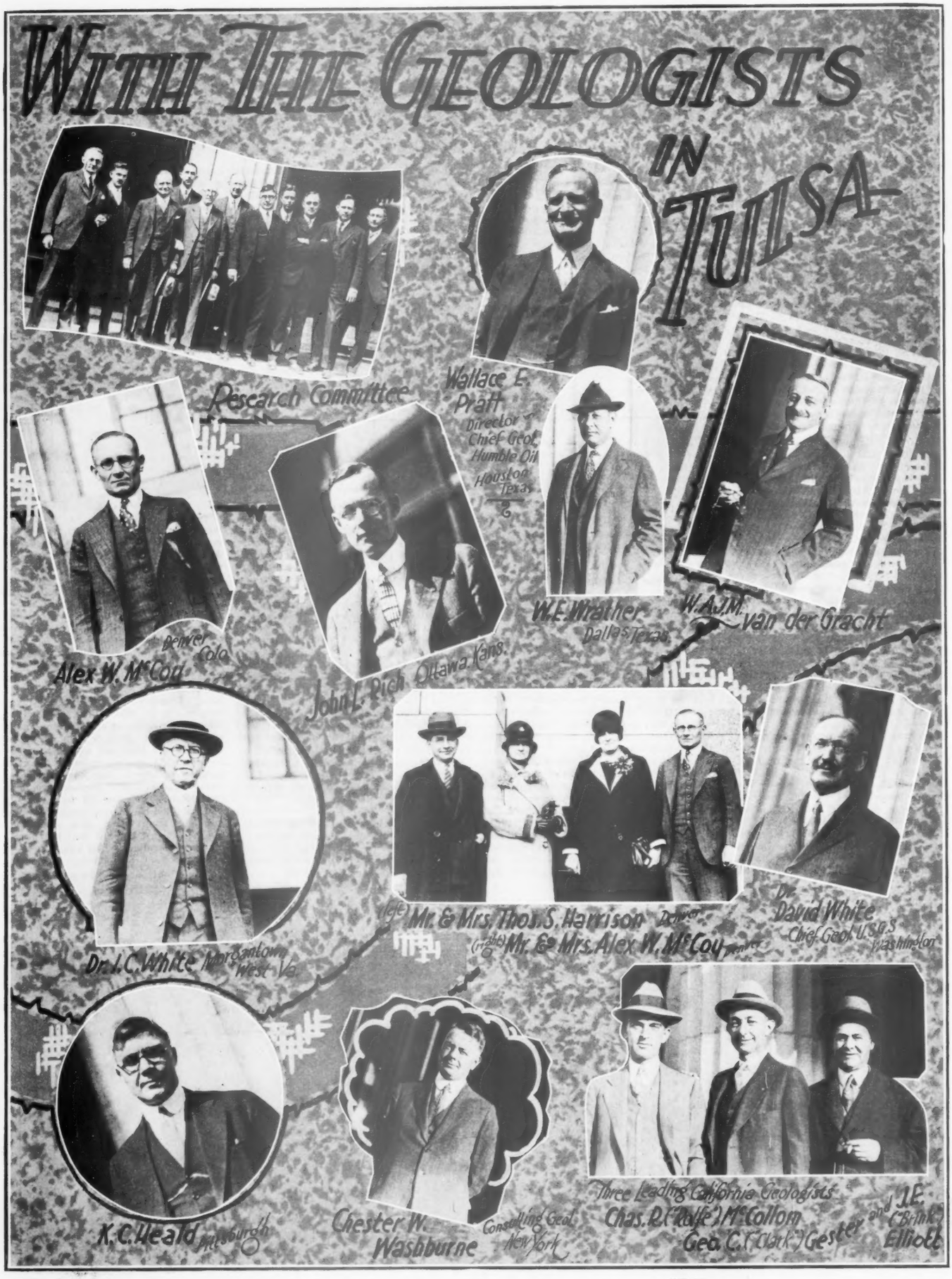
MERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS IN TULSA LAST WEEK

—Photo by Ward, Tulsa.


WITH THE GEOLOGISTS IN TULSA
Research Committee
Wallace E. Pratt
Director & Chief Geol. Humble Oil
Houston Texas
W.E. Wrather
Dallas Texas
W.A.J.M. van der Gracht
Alex W. McCoy
Denver Colo.
John L. Rich Ottawa Kans.
Dr. I.C. White Morgantown West Va.
(left) Mr. & Mrs. Thos. S. Harrison Denver
(right) Mr. & Mrs. Alex W. McCoy Denver
Dr. David White
Chief Geol. U.S.G.S. Washington
K.C. Heald Pittsburgh
Chester W. Washburne
Consulting Geol. New York
Three Leading California Geologists
Chas. R. (Ralph) McCollom
Geo. C. (Clark) Gester
and J.E. (Brick) Elliott

Ventura Avenue Stabilizing Influence

In Hands of Conservative Companies. Expected to Obtain World Record for Deep Production

By J. E. Eaton
Consulting Geologist

Ventura Avenue is potentially the most important oil field in southern California. It is approximately equal in size, sand thickness and saturation to Long Beach which has already produced more than 200,000,000 bbls. of petroleum; and in drainage area, gas pressures and quality of oils it is superior to the latter field.

Perhaps the only feature which has saved the oil industry in California from a repetition of the demoralized markets of 1923 is that Ventura Avenue is controlled by a few conservative companies in rather large blocks. The eastern and western ends of the field are, in fact, practically earthen reservoirs.

The present production figure of 51,000 bbls. daily is misleading as a measure of Ventura Avenue, unless it be realized that the bulk of this oil comes from a comparatively small territory (see accompanying map.) Were the entire field drilled in the quick and close manner of Long Beach and Santa Fe Springs, its flush production might be comparable to the flush of those areas, or between 250,000 and 350,000 bbls. daily.

Geology

The geology at Ventura Avenue is almost ideal for the occurrence of petroleum. Ventura Basin contains one of the maximum Teritary and Quaternary sections of the world, more than 37,000 feet of sediments of these ages being exposed. The Fernando group (uppermost Miocene, Pliocene and Lower Pleistocene) aggregate 20,000 plus feet of reservoir rocks, which overlie 2,000 or more feet of Modelo (Miocene) organic shales.

Ventura Avenue is located upon the Ventura anticline, a closed structure approximately 18 miles long and 4 miles wide. At the crest of this anticline, perhaps 7,000 feet of reservoir rocks cap the organic shales. The known oil horizons occur in the lower part of the Fernando (reservoir) group, whose base has not been reached in any well drilled in the field to date.

History of Development

Gas seeps in the bed of the Ventura River where it crosses the crest of the anticline led to the drilling of seven shallow wells in 1903 to obtain gas for local use. The oil possibilities of the anticline were early recognized, and deep exploration was recommended by Ralph Arnold and other geologists. Negotiations conducted toward this end fell through, however, and the further development of the area was delayed.

In 1916, the State Consolidated Oil Co. drilled east of the old gas producers and brought in its No. 1 Lloyd well for a small production of 50 degrees oil at a depth of about 2,250 feet. Subsequent wells in this first or upper zone encountered high gas pressures and much water trouble, with the result that little progress was made toward developing the field.

The Shell Oil Co. of California in 1918 discovered the second oil zone of the field in the first well drilled upon its Gosnell lease. This zone which was encountered around 3,200 feet, yielded oils averaging 30 degrees, furnished larger production than those previously known, and led to wider development. Annoying water troubles, and enormous gas pressures that carloads of hematite used in the drilling mud failed to conquer, held back progress for years.

In January, 1925, the Associated Oil Co., which had taken over the State Consolidated holdings, succeeded in overcoming the tremendous gas pressures that hinder deep operations, and discovered the third oil zone of the field. No. 9-A Lloyd, the discovery well, came in at a depth of 5,150 feet with an initial production of 4,639 bbls. of 30 degrees oil. The development resulting from this discovery has since raised the daily production of the field from 8,000 to over 50,000 bbls.

Future Possibilities

The shallow or first oil zone at Ventura Avenue is 1,000 feet thick, covers a limited territory, and is more or less water logged. It is of minor importance, and its further exploitation will probably hinge largely on the future price of oil and improvements in mechanical methods.

The second oil zone is separated from overlying productive strata by the Gosnell shale, and is 1,200 feet in thickness. It has a somewhat larger areal extent than has the first oil zone. The upper half yields small quantities of oil and considerable water and the lower half initial production of cleaner oil as high as 1,500 or more barrels per well. There seems to be no very definite marker between this and the third oil zone, the chief difference between the two appearing to be the much larger areal extent and productivity of the latter.

The third oil zone has at this writing been penetrated for approximately 1,600 feet. A well 6,850 feet deep has failed to find the bottom of this horizon. Detailed surface mapping by the writer, combined with well data, indicates that practically all of the territory within the 4,800-foot contour (shown on the attached map) should furnish production from this zone. Production may be found somewhat further to the east and west, due to the gentle plunges of the anticline and the known tendency of oil to extend far down gentle inclinations. Properly completed wells in this horizon have had initial yields up to 6,000 bbls. daily in flush territory.

Santa Margarita Strata

Work by the writer upon the large Santa Paula monocline east of the field indicates that the stratigraphically deepest wells at Ventura Avenue have reached sands of Santa Margarita (Upper Miocene) age similar to those exposed near the bottom of the monoclinal section. As these Santa Margarita strata locally form the base of the Fernando or chief reservoir group of southern California, it seems probable that the most favorably located wells will reach the bottom of the Fernando at around 7,000 feet, and will then penetrate the Modelo formation which contains poorer sands.

The writer considers that the largest oil production comes, and will come, from Santa Margarita strata above depths of 7,000 feet. It is probable that smaller yields will be obtained in favorable territory from Modelo and Sespe sands at a much greater depth. These Modelo and Sespe sands, elsewhere productive in southern California, doubtless occur beneath the Santa Margarita (basal Fernando) strata at Ventura Avenue. The deepest is indicated to lie about 16,000 feet beneath the structurally highest part of the anticline. Ventura Avenue may therefore be expected to shortly obtain the world's record for deep oil production, and to hold it for some time.

Market Factors

The writer has previously published the opinion that Ventura Avenue will produce between 150,000,000 and 200,000,000 bbls. of petroleum, and rank fifth in total ultimate production and third in value of the oil produced among all fields discovered to date in California. He has consistently advised parties endeavoring to ascertain the influence of this field that Ventura Avenue will probably have no demoralizing influence upon the market, but may, on the other hand, be a stabilizing factor in the oil industry.

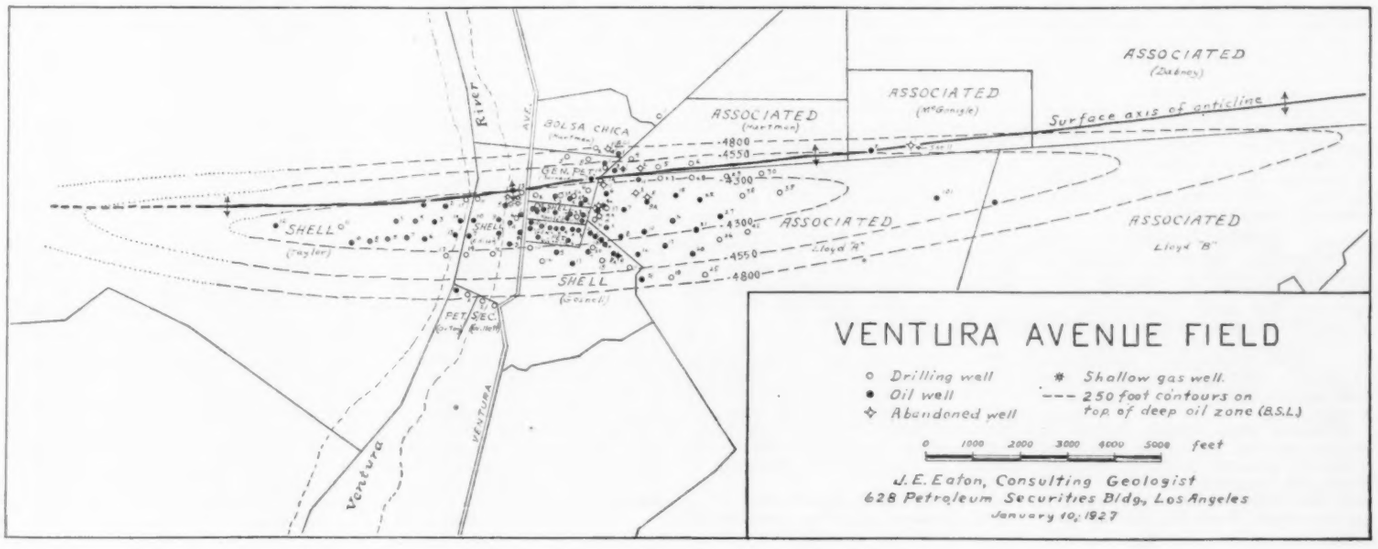
As a reason for this optimism, attention is called to the fact that the undrilled acreage of this field is almost entirely in the hands of the two conservative companies. This undrilled acreage will be in large part protected from competitive drainage after the first half of 1927, and will thereafter provide the safest of all storage. Approximately 100,000,000 bbls. of petroleum can then be drawn upon either slowly or swiftly as may be desired, without annoyance, and over a period of years. It therefore seems probable that further development in the Ventura Avenue Field will be hastened or retarded in proportion to the national outlook. In this respect Ventura Avenue is only an outstanding example among a number of underdeveloped California fields.

The writer has elsewhere discussed the general California situation.* In view of the exaggerated pessimism prevailing in some quarters regarding overproduction in California, the writer would repeat and emphasize his opinion expressed at the beginning of the year when he was inclined to believe that "California production will maintain, on the whole, almost its present level (660,000 bbls. January 1) during 1927." This was considered an average. Although contrary opinion prevails, he considers that the high and low of California production during 1927 may not be 35,000 bbls. above and below the estimated average. A possible exception is toward the last of the year, when, in the absence of new fields, a general decline is expected.

*J. E. Eaton, "Future Oil Production of California," The Oil and Gas Journal, December 30, 1926, page 40.

TOURING OIL FIELDS

WASHINGTON, D. C., Mar. 25.—H. H. Hill, Chief Petroleum Engineer, Bureau of Mines, Department of the Interior, left this city yesterday for a tour of the oil fields. He will return to Washington, April 23.



Cheap Crude's Effect on Cracking

Curtailment Not General. Demand for Fuel Oil and Antiknock Gasoline Factors

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

Cheap crude oil and low-priced gasoline is expected to result in some curtailment of cracking operations throughout the country. Whether this curtailment will amount to a decline in the actual production of cracked gasoline or simply will reduce the proportion manufactured to the total refinery output of gasoline is difficult to determine at this time and depends somewhat on how long present price conditions continue.

It is apparent that some of the larger companies are committed to curtailment of cracking operations as a source of relief for the present tendency to overproduce gasoline. This is revealed by announcements of actual curtailment and by recognition that the start of operation of new units about ready may be generally deferred. It is also expected the situation may result in delaying construction of new units.

A factor indicating that cracking operations will, nevertheless, continue on a large scale is that the industry is committed to specialized motor fuels, typified by the cracked product or blends of cracked gasoline. The industry during the past two years has demonstrated its ability to provide such a fuel in quantity, and the automotive industry has slowly taken cognizance of the situation in its tendency to increase engine compression ratios.

Favors Crude Stock

From an economic standpoint, the recent reductions in the price of crude oil, particularly in the higher grades yielding a large percentage of gasoline on straight distillation, coupled with the continued relative strength of fuel oil and gas oil utilized for cracking stock, have established a big differential in favor of crude oil in competition with fuel oil and gas oil as a source of gasoline.

Gas oil is selling above the top grade of crude oil in the Mid-Continent territory, and fuel oil is selling almost on a parity with the highest grade crudes. This difference when taken into consideration with the fact that operation of cracking units is more expensive than straight distillation needs only the additional observation that Group 3 U. S. Motor gasoline is selling but slightly above 6 cents a gallon, to show that the present price market is painting cracking out of the picture.

This is not the first time that cracking development has been slowed up by overproduction of crude oil. In 1923 and 1924, while considerable increases in cracking installations were recorded, the natural development was greatly retarded and in many refineries actual curtailment of cracking operations occurred. In this connection it is of interest that California, which bore the brunt of the overproduction, has only recently gone in for cracking. To some extent, this is due to the character of the crude, but, broadly, it illustrates the point of retarded cracking development in the face of plentiful crude and cheap gasoline.

Cracking Movement

The cracking movement reached its highest point last year and established a momentum that will run the expansion well into this year. According to the survey of The Oil and Gas Journal there was an increase of 25 per cent in cracking facilities. The cracking capacity as of March 1, 1927, amounted to 1,240,890 bbls., against 980,960 bbls. the preceding year.

Estimates from reliable sources of cracked gasoline production show that while the quantity produced increased during the overproduction years of 1923 and 1924, there was an actual decline in the percentage of cracked gasoline made to the total production at refineries during those years as against 1922.

Growth of Cracking

The increase of 25,000,000 bbls. in cracked gasoline production in 1926 amounted to more than the entire cracked gasoline output in 1921. Almost as much cracked gasoline was made last year as the total gasoline produced in the United States in 1919. The following table shows the growth of cracked gasoline production:

	Total Gasoline Produced Barrels	Amount from Cracking Barrels	Per cent Cracked of Total
1918.....	85,007,000	8,501,000	10.0
1919.....	94,235,000	10,000,000	10.6
1920.....	116,251,000	15,000,000	12.9
1921.....	122,704,000	20,000,000	16.3
1922.....	147,672,000	30,000,000	20.3
1923.....	179,903,000	35,000,000	19.5
1924.....	213,325,000	40,000,000	18.7
1925.....	259,601,000	68,583,000	26.4
1926.....	299,734,000	93,736,000	31.3

Note—Figures prior to 1925 for cracked gasoline production are estimated from reliable sources. Later figures from Bureau of Mines.

It is estimated that in 1922 there were 30,000,000 bbls. of cracked gasoline made out of a total refinery production of 147,672,000 bbls., or 20.3 per cent of the total. In the following year cracked gasoline production had increased to 35,000,000 bbls., out of a total gasoline production of 179,903,000 bbls., and in 1924 to 40,000,000 bbls. out of a total production of gasoline of 213,325,000 bbls. Cracked gasoline in the two years made up, respectively, 19.5 per cent and 18.5 per cent of the total gasoline production—in other words, did little more than mark time.

With relief from the condition of overproduction of crude beginning in 1925, cracking expansion was resumed. Bureau of Mines gives the cracked gasoline production in that year as 68,583,000 bbls. out of a total gasoline production of 259,601,000 bbls., or 26.4 per cent of the total. Last year 93,736,000 bbls. of cracked gasoline were produced out of a total gasoline production of 299,734,000 bbls., or 31.3 per cent of the total.

The most drastic reduction in cracking operations so far announced is that made last week by the Standard Oil Co. of New Jersey at its Bayway, N. J., refinery. The company is now operating only 80 of the 180 units at its refinery, giving as the reason the large production of crude oil and the increased production of gasoline. Methods of running crude oil have been revamped to meet the present price situation, also.

The New Jersey company refineries have the largest combined capacity of any single company plants in the country, and the fact that the company is a large producer and marketer of fuel oil undoubtedly has some bearing on its present change of manufacturing policy. The fuel oil market is strong, as against the weak gasoline market, and the company is shifting its operations to meet this condition.

Storing Gasoline

It is pointed out that on the present gasoline market it is possible for the larger companies which are able financially to purchase now and to carry stocks over a period to make considerable purchases of finished gasoline and to keep their gas-oil distillates in storage rather than charging the latter to cracking stills. In this connection, the curtailment in cracking operations will serve to relieve the situation from the gasoline production standpoint, while the purchases of finished gasoline will relieve it by taking gasoline out of weak hands.

At the moment the cracking operations of the Tide Water Oil Co. at its Bayonne, N. J., refinery will probably not be affected. A large reconstruction program of cracking units is under way at the plant. Present operation is taken care of by some of the earliest Burton still units which are being replaced by tube-and-tank units. The new units are not due to go into operation until around the first of May. It is possible that a continuance of price differentials in favor of straight running of crude as against cracking of fuel oil and gas oil will interfere with the starting of the new units, or result in a curtailed operation.

Company officials believe that a considerable curtailment of cracking operation generally will naturally follow as a result of the present price situation.

No Cut by The Texas Company

The Texas Company, it is understood, has not cut down any of its cracking operations. This applies to its refineries at Tulsa, Dallas and Port Arthur, all of which operate Holmes-Manley units. According to officials of the company, it will probably be slow to reduce cracking operations because it is putting out a special gasoline derived from cracking and has made its manufacturing and marketing policy to conform.

The Texas Company, with its control of the Holmes-Manley process, has gone into cracking on a large scale and has one of the largest cracked gasoline outputs in proportion to total gasoline production of any company. The company has in operation, or in the course of construction today, over 100 units in its own plants, while some 50-odd units are operating, or being constructed, in other refineries throughout the country. Over 10,500,000 bbls. of gasoline were produced by Holmes-Manley stills in 1926, this amounting to 11 per cent of the total cracked gasoline output.

Operation of new units being constructed may be interfered with if the present conditions continue, and it is recognized by company officials that the tendency will be to delay the construction of new units.

The Texas Company, as other companies, making and marketing cracked gasoline, or a cracked gasoline blend with antiknock characteristics, will undoubtedly continue to put out this quality gasoline, and this will operate as a deterrent against drastic cuts in cracking operations. The automobile industry is tending toward higher compressions of engines requiring antiknock fuel, and it is not likely that because of the economic situation in the oil industry at present the trend toward supplying specialized types of motor fuel, which has been pronounced in the last two years, will be interfered with.

Taking The Texas Company's operations as an example, the company has standardized in the manufacture of low endpoint gasoline, and the Holmes-Manley units have been called upon manufacture this product instead of the former Navy boiling range product. The units are further called upon to manufacture a product which may be treated in such a manner that the antiknock compounds are not destroyed.

The Sinclair Refining Co. is not now reducing cracking operations at its various refineries, a factor being the marketing of a specialized gasoline which it will continue to produce. That cracking operations, and particularly the extension of cracking operations, will be affected if the present price conditions prevail over a period is stated as obvious, however, with the margin between the f.o.b. refinery price of gasoline and gas oil reduced in some cases to less than 2 cents a gallon.

ECONOMIC CHANGES IN INDUSTRY RESULTING FROM OVERPRODUCTION

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Mar. 26.—The current heavy production of high-grade crude oil promises to make 1927 a year of vast economic changes in the petroleum industry, in the opinion of several oil men in this section of the country. Of course, the extent of such changes depends entirely on the duration of the flood of oil from Seminole County, Oklahoma.

It is pointed out that the oil industry has never before been confronted with so much high-grade crude as it now has at its disposal. Hence, there are one or two new problems growing out of this situation which the industry will probably have to solve this year.

For the past few years one of the outstanding developments in the oil industry, of course, has been the growth of "cracking." This process has been largely responsible for the ability of the oil industry to keep abreast of the astounding increase in gasoline consumption from year to year, despite an appreciably small gain in crude oil production.

The situation was that the industry had more than enough heavy crude and fuel oil on hand, including current production and stocks, to supply the demand for fuel and gas oil and the heavier products, but insufficient light oil, so that it was necessary to utilize these heavier oils for the purpose of increasing the production of gasoline.

At this moment it appears there is too much high-grade oil, or at least enough to take the pressure off the heavy crudes and fuel oils so far as supplying the demand for gasoline is concerned. In other words, enough gasoline could be obtained, provided the current high-grade oil yield were available for refining, through "straight running," to cause a marked decrease in the need either for "cracking" or for using natural gasoline to blend with the lower grade gasolines produced from low-grade crudes and fuel oil.

Consumption Big Factor

Thus the oil industry is confronted with a knotty problem, which is of a degree of seriousness which cannot be calculated until it is known how long this high-grade oil yield is going to be maintained at present figures. Of course, there is the possibility that gasoline consumption will be so great this year as to absorb all the gasoline that can be produced from these high-grade oils, even with a continuance of production from cracking on its 1926 scale, as applied to fuel oil and heavy crude oil. But this is not likely.

The point is, that the tendency on the part of any industry, based principally on the law of competition, is toward getting production costs down to a minimum. The oil industry will undoubtedly follow this normal trend and will produce its gasoline at as low a cost as possible. The company able to do this will doubtless be the one which has the largest per-

(Continued on Page 179)

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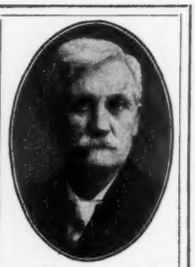

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A ONE-CROP INDUSTRY

Increasing consumption has always been the salvation of the oil industry in times of overproduction.

The pioneers recognized that when they extended the markets for kerosene world wide by distributing the "coal oil lamp."

The present generation found their market made for them by the automotive industry and, perhaps for that reason, have been less enterprising in developing new uses for their products.

Three years ago, during the overproduction in California, The Oil and Gas Journal asked attention for the possibilities of marketing oil for domestic heating. It was suggested that here was an outlet for all the surplus oil we were likely to produce, an opportunity to stabilize prices all along the line and to put the industry clear of the recurrent disturbances that shook its whole structure.

The topic was taken up and discussed, even at the meetings of the American Petroleum Institute. Oil burner makers were invited to address gatherings of oil men and public interest was aroused to an extent where installation of oil burners alarmed coal men.

For two years the interest in the oil burner market was maintained and then, with the development of cracking and the use of fuel oil as a base for gasoline, it seems to have been assumed that the oil burner's possible expansion could be disregarded.

Yet events have proved that the production of distillates has increased with the growth of cracking and the growth of cracking has resulted in another period of overproduction of both crude and gasoline, making it all the more essential that wider markets be found for minor products.

The point to remember is that so long as we have cheap fuel oil and distillates we will have cheap gasoline. We cannot have proper prices for gasoline so long as we have cheap charging stock. And we will have cheap charging stock unless a demand is created for distillates outside cracking.

If the domestic oil burner had been developed as rapidly as the automobile the industry would be in much better shape.

But let it be said right here that the oil industry has not been wholly responsible for slowness of domestic oil-heating.

Oil burner manufacturers and refiners have not co-operated as wholeheartedly as they might have done.

It was pointed out in these columns long ago that the chief handicap was failure to get together on a definite specification for oil.

Burner manufacturers began without any definite standard of fuel. As they progressed they became more exacting in their demands regarding specifications with the result that refiners were obliged to go to greater expense to fill the order. This increase in cost reacted through the consumers on the burner makers themselves, curtailing the public demand.

Some of the demands made upon refiners in the way of specifications requiring greater expense in manufacture, could have been avoided by engineering adjustments in the burner installations.

The need of the public was for a burning oil that could be had at a reasonable cost. The refiners wanted to supply a product that could be made plentifully. The variety of burners and the variety of fuels required was demoralizing to distributors and caused endless confusion and controversy between users, fuel marketers and burner makers with resulting check upon the whole business.

Fortunately for all concerned, the burner industry has consequently been going through the process of elimination and the survival of the fittest which generally takes place in a new business. With the burner industry thus approaching standardization there is more hope for agreement with the oil industry on the fuel.

That having been determined as efficiently as motor fuel has been specified it should be possible to give the domestic oil burner users practical assurance of an ample and suitable supply.

The country is once more facing the likelihood of a coal strike. These recurring upheavals are driving the public to consider other fuels of more dependable output. Coal men, and even some oil men, have doubted whether oil could be counted on but it would be about as reasonable to discourage the buying of automobiles in fear of a shortage of gasoline.

The oil industry has never failed to find enough motor fuel and there is no likelihood of the market for burning oil for domestic heating outstripping the supply once the demand is made worth the oil industry's giving it serious attention. Competitive improvement in burner manufacture and in refining for that market can be depended upon as in the automotive and gasoline industries.

The oil industry has been making too much gasoline and producing too much crude for a market resting on gasoline. With gasoline consequently at bottom prices there is the greater need for cultivating markets for other products. The industry is really fortunate in having other products that may be used to carry some of the burden dropped by gasoline.

The development of oil for domestic heating offers probably the largest distribution but there are many other fields in which the use of oil might be enlarged immensely.

Arkansas and Louisiana refiners are finding a ready market for gas oil through the use of Diesel engines in pumping water to the rice fields. Comparison of prices will show that they are able to obtain a better price just now than their Mid-Continent neighbors.

This is but one instance of a special use for internal combustion engines that might be extended in thousands of localities.

The automobile has familiarized almost everybody in this country with the internal combustion engine for transportation. It is but a step to the wider use of internal combustion engines for stationary power for a multitude of purposes. Much progress has been made in this direction and it is only an introduction.

There is a potential demand for oil for power and heating that would keep the oil industry as busy as it has been kept meeting the demand for gasoline for transportation.

If John D. Rockefeller and his early associates had waited until the Chinese came to America for kerosene the story of the oil business might have been very different. If it had not been kept busy with the demand for light, would it have been in position to have met the demand for power when the automobile arrived?

Modern industry is expanded by creating and enlarging demand, exactly as Mr. Rockefeller did with the little oil lamp.

The cotton states have realized the danger of being a one-crop section. The oil industry is in danger of becoming a one-crop industry. It has yet to realize the possibilities of its other products.

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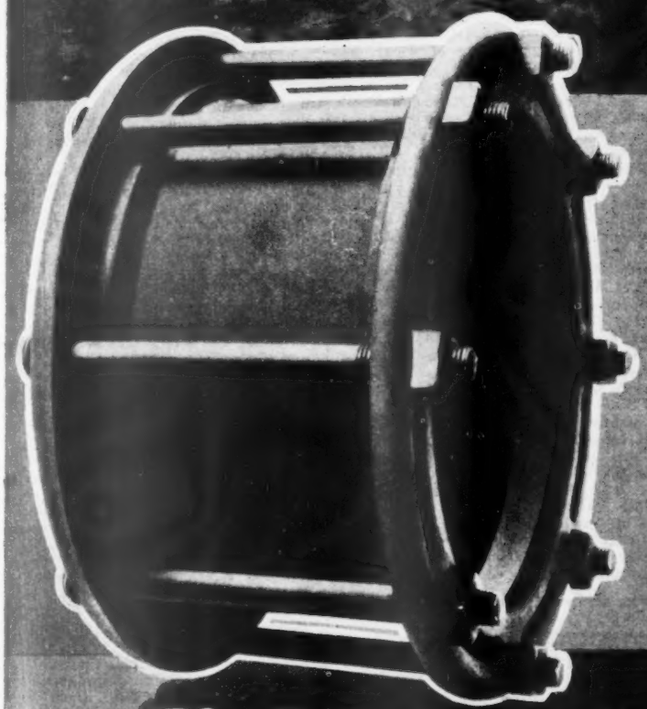

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COUPLINGS

Dominate!

Winkler County Well Makes 2,580 Bbls.

Gulf's Producer Sensation of Week. Simms Co.'s Crane County Well Flows 4,500 Bbls.

By C. D. Lockwood
Staff Correspondent, North and West Texas

FORT WORTH, Tex., Mar. 28.—The Gulf Production Co.'s 2,580-bbl. producer in Winkler County proved the sensation of the past week in West Texas although the Simms Oil Co. and Atlantic Oil Producing Co. drilled in their No. 3 University-A in Crane County which established a new record for initial production in that part of the world by flowing 4,500 bbls. during the first 11 hours. Pecos County's Yates Pool was also enriched to the extent of another well in the gusher class, the Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s No. 3 having flowed better than 1,100 bbls. at total depth of 1,082 feet in pay topped at 1,000 feet. Upton County had another 80-bbl.-an-hour producer in the Dixie Oil Co.'s No. 21 Burleson, John Nidever Survey No. 2, and several other completions in the Upton-Crane area, particularly in the Gulf-McElroy and Church and Fields Pools indicated a considerable increase in production next week.

In the North Texas District, a new pool was added to Cooke County's producing areas, good showings were obtained in Shackelford, Coleman and Wilbarger County wildcats, and good wells were added to the Thomas & Reynolds Pool, the Independent-Morgan Pool and the Ramsower area of Eastland County.

The feature of North Texas was a 112-bbl.-an-hour well in the Fry district of Brown County. This is J. K. Hughes Developing Co.'s No. 3 Shore, third location south of the SW cor. of The Texas Company's Lowe lease and located in the NW of Section 635, J. C. Ryan and J. W. Shore Land. It topped the Fry sand at 1,291 feet and was drilled in 13 feet. From Sunday noon until Monday morning at 7 a. m. this shallow wonder flowed 2,000 bbls.

Winkler County's Well

Returning to the sensation of West Texas, the Gulf Production Co.'s No. 1 Hendricks, NW cor. Section 34, Block B-5, topped the sandy lime pay at 2,824 feet and flowed by heads at 2,836 feet. At total depth of 2,842 feet it flowed steadily at the rate of 180 bbls. an hour and actually tanked 2,092 bbls. in 12 hours March 24 but was pinched in to 2,580 bbls. daily the latter part of the week. The gravity of this crude tests 29 degrees. Southern Crude Oil Purchasing Co. has one 55,000-bbl. tank in Section 6, about 2 miles from the well, and has connected to the Gulf producer with a 6-inch line. The Southern Crude Co. already had 20,000 bbls. of oil from its discovery well in this tank when the connection was made, however.

Four new locations have been made on the Gulf lease, the Atlantic Oil Producing Co. has staked a location and the Pure Oil Co. is rigging up its offset to the discovery and Gulf wells. Gulf Production Co.'s No. 2 Hendricks is 330 feet south and 990 feet east of the NW cor.; No. 3 is 990 feet south and 330 feet east of NW cor.; No. 4 is in the SW cor. NW, offsetting Southern Crude Oil Purchasing Co.'s No. 3 which is rigging up; and No. 5 is 330 feet north and 1,650 feet east of SW cor. NW, an offset to Atlantic Oil Producing Co.'s No. 1 Rigs are moving in for all four of the new Gulf wells.

Acreage in Small Tracts

This field constitutes one of the greatest danger points in West Texas so far as overproduction is concerned because the acreage is split up into small tracts. The Independent Oil & Gas Co. owns 80 acres adjoining the Gulf's 160 acres on the south, being the west half SW of Section 34; the Atlantic Oil Producing Co. owns the east 80 acres of the same quarter and is starting a well in the NW cor. of it. The Pure Oil Co. owns the quarter-section diagonally southeast of the Gulf and also directly north, while the Humble Oil & Refining Co. owns the quarter directly east and Republic Production Co. has the diagonal northwest 160 acres. Roxana Petroleum Corp. is only a mile south of the big well with an 80, and Marland Oil Co. is situated about the same distance away with a like amount of acreage.

It has been proved, anyway, that control by one company doesn't neecssarily mean that a field will be allowed to lie dormant for any length of time, although the production is generally held down to a fraction of what it might be under competitive conditions. For instance, the Gulf-McElroy Pool in Crane County is now producing more than 13,000 bbls. daily, which almost puts it in the major pool class. There aren't so many fields in the United States producing more than that amount.

Geology Puzzling.

Geological conditions in the Winkler County Pool are still puzzling. In the first place, there was no geological justification for the discovery well, and now the Gulf's producer, a diagonal southeast offset, is 132 feet higher on the lime. The Gulf pay, however, is 286 feet in the lime while the Westbrook pay is only 186 feet below the top of the lime. The Gulf well failed to get any of the upper shows which encouraged the discoverers of the pool. The Southern Crude Oil Purchasing Co.'s No. 1-C Hendricks, NE cor. Section 33, west offset to the Gulf and south offset to the discovery, is drilling below 2,560 feet and likewise failed to encounter the 2,500-foot oil found in the original well. The Independent Oil & Gas Co.'s west offset to the discovery is fishing for bailer at 2,005 feet and hasn't yet reached the top of the salt which occurred at 1,910 feet in the Southern Crude's No. 1-C and at 1,665 feet in the Gulf well. Some geologists are of the opinion that a fault may exist in this locality.

Skelly Oil Co.'s No. 1 Leeman, in Section 21, Block 75, near the Loving County line, furnished some data for speculation this week when it topped the salt at 1,167 feet, with a surface elevation of 2,951 feet. This is 648 feet higher than the salt in Gulf Production Co.'s No. 1 Hendricks. However, the top of the salt doesn't mean much, apparently, in that country. As an example, the old Pinal Dome well, No. 1 Means, in Loving County, located in Section 23, Block C-26, several miles farther west of the Skelly-Leeman, topped the salt at 921 feet or plus 2,006 feet. The bottom of the salt, however, was 4,751 feet, or minus 1,824, and the lime was 4,995 feet deep or 2,068 feet below sea level. Elevation of this well is 2,927 feet and total depth 5,208 feet. It had a showing of water, gas and oil at 5,023-31 feet and at 5,046 feet, where it bailed about 25 bbls.

Crane County Record

The record well of Crane County is Simms Oil Co. and Atlantic Oil Producing Co.'s No. 3 University-A, SW cor. SE SE, Section 39, Block 30, one location west of the big No. 2. Pay was drilled from 2,871-2,924 feet, and was good for 4,500 bbls. in 11 hours.

Simms and Atlantic's No. 1 University-B, SE cor. SW SW, Section 34, a north offset to Magnolia Petroleum Co.'s No. 1 University-Hardwick, flowed 275 bbls. after a 100-quart shot at 2,950-3,000 feet. This extends production one location northwestward. Magnolia's No. 5 O'Keefe-University, a diagonal northeast offset to Simms-Atlantic No. 1 University-A, was a small well, flowing 147 bbls. at 2,993-3,003 feet.

Simms Oil Co. is building two 55,000-bbl. tanks on each of its A and B leases in this pool and the Atlantic Oil Producing Co. is also building two 55's. The Eastland Oil Co. is building one 55 in Block 30.

Gulf Production Co. is erecting six additional 80,000-bbl. tanks at its farm 2 miles east of Midland, where its 8-inch line ties in from the McElroy Pool. The Gulf is surveying the route for a 200-mile line which will run from this tank farm to the company's Ranger station and will probably be a 10-inch line.

Yates Pool

The Yates Pool of Pecos County represents not only one of the highest structures in West Texas but also one of the greatest in thickness of pay zone. Mid-Kansas Oil & Gas Co.'s No. 3 Yates-A, located 535 feet east of the discovery well, topped the lime at 992 feet and the pay at 1,000 feet. It has been successively deepened to 1,082 feet and March 24 flowed 1,087 bbls., having rapidly increased from 105 bbls. March 18. The latest gauge last week showed more than 1,100 bbls.

No. 1 Yates is opened up one hour each day now and No. 2, the record-breaking well, is still leaking through the gate. No. 1 Yates-B, formerly carried as No. 1 Account 2, is the only well, except for No. 3 previously mentioned, which has been flowing open and it averaged 252 bbls. during the past week. Under these conditions, 3 wells were producing better than 900 bbls. daily.

The Illinois Pipe Line Co.'s line to this pool from McCamey has been buried for 8 miles and strung for 11 miles more. When it is completed, this pool will add materially to the overproduction problem.

Crosby Drilling Co.'s No. 1 Yates in Section 70, Block 1, north of the pool, had a small showing of gas at 920 feet and a small showing of oil at 925 feet, but picked up a hole full of water at 930-40 feet. The 8-inch was set at 952 feet and the well was drilling ahead in white lime at 990 feet.

In Eastland County, Root and others' No. 1 Watson, SW cor. Section 37, Block 4, H. & T. C. Survey, was shot with 30 quarts at 3,750-80 feet and with 100 quarts at 3,766-80 feet after plugging back from 3,940 feet and with 100 bbls. estimated. Amerada Petroleum Corp. and Thomas & Reynolds' No. 1 Ables, SW cor. NW, Section 13, Block 3, a diagonal northeast offset to the discovery near Carbon, flowed 94 bbls. the first 6 hours at 3,012-25 feet. Independent Oil & Gas Co.'s No. 2 Snider, north of the Morgan well, flowed 250 bbls. after a 200-quart shot at 2,876-2,976 feet, total depth 2,981 feet.

Cooke County Extension

In Cooke County, Fain-McGaha Oil Corp's No. 1 A. A. Otto, about 3 miles north of Myra and 4 miles from the nearest production, found pay at 963-67 feet with lots of gas and about 150 feet of 40 gravity oil in 5-inch casing. It is estimated good for 30 bbls. but will cause no competitive drilling as the company owns 3,000-acre solid block around it. Royalty, however, has been selling for $100 an acre for a half.

The Muenster Pool appears to be small in area since the Stroube well swabs only 5 bbls. on the west side, and the Camp-Heydrick well on the south is good for only 10 bbls. The wells in this pool are now averaging about 20 bbls. daily.

In the McElroy Pool, Crane County, Gulf Production Co.'s No. 3 Crier-McElroy-A flowed 1,167 bbls. at total depth of 2,835 feet; No. 6 J. T. McElroy flowed 1,117 bbls. at 2,811 feet.

In Wilbarger County, Gulf Production Co.'s No. 2 Milner pumped 127 bbls. in 18 hours at 1,493 feet.

In Parker County, C. P. Coffin's No. 1 Stickford, Section 194, T. & P. Survey, was plugged back from 4,050 feet to 2,820 feet and was shot with 60 quarts from 2,780-2,820 feet. It bridged and is being cleaned out.

WEST TEXAS WILDCATS

Week Ending March 26, 1927

Company, Farm and Location—	Remarks—
ANDREWS COUNTY	
Calvin & Belt's No. 1 Ratliff & Bedford, C NE Sec. 16, Blk. A-54	Location.
J. S. Cosden's No. 1 Ratliff & Bedford, C SE Sec. 8, Blk. 73, Public School Land	Location.
Sartain Oil Co. et al's (was Deep Rock Oil Co.'s) No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School Land	Location.
C. B. McKennon's (was Neff et al's) No. 1 J. S. Means, C SE Sec. 12, Blk. A-35, Public School Land	To spud by April 9; location.
A. G. Carter & Zweifel's No. 1 Cowden, C SE Sec. 18, Blk. A-52, Public School Land Sur.	Shut down for 10-in. at 1,350 ft.
Maer & Staniforth's No. 1 W. B. Taylor, C SE Sec. 15, Blk. A-42, Public School Land Sur.	Drilling 1,050 ft.
Stivers et al's No. 1 Snodgrass, C NW Sec. 475, Blk. 97, H. & T. C. Sur.	Rigging up.
CASTRO COUNTY	
Colorado O. & R. Co.'s No. 1 M. Siemons, SW cor. Sec. 78, Blk. M17, B. S. & F. Sur.	Rig.
Gulf Prod. Co.'s No. 1 Clements, SW cor. Sec. 27, Blk. M-10-A, Sealy & Morris Sur.	Total depth 1,505 ft.; underreaming 8-in. to 1,490 ft.; water sand 1,435-50 ft.; total depth 1,725 ft.; underreaming 8-in. 1,705 ft.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE Sec. 333, Blk. M-6, S. K. & K. Sur.	Spudded and shut down.
COCHRAN COUNTY	
J. C. Whicker's No. 1 G. C. Landon, 300 ft. N and 5,800 ft. E SW cor. League 154 Sherman Co. Sch. Ld.	Shut down 1,550 ft.
COKE COUNTY	
Lipan Oil Co.'s No. 1 E. C. Rawlings, CNL Sec. 390, Blk. 1-A, H. & T. C. Sur.	Fishing tools 2,736 ft.; may skid.
Lipan Oil Co.'s No. 1 S. M. Conner	Shut down for casing 100 ft.
CONCHO COUNTY	
Harry Adams et al's No. 1 Price, C SW Sec. 78, Blk. 71, Alex Gregg Sur.	Location.
Associated Pet. Co.'s No. 1 Sam Waring, SW cor. Jacob Getthardt Sur. No. 2,035	Fishing bit 2,300 ft.
Arkansas Fuel Co.'s No. 1 Hartgrove, SW cor. NW Sec. 49, Blk. 70, H. & T. C. Sur., 12 miles E of Paintrock	1,000,000 ft. gas 1,100-10 ft.; 4,500,000 ft. gas 1,142-47 ft.; small show oil in sandy lime 2,165 ft. shut down.
Mullins, Davis & Davenport's No. 1 William Hughes, C Sec. 6	Drilling 1,880 ft.

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NORTH TEXAS COMPLETIONS

Brown County

Amerada Petroleum Corp's No. 22 J. H. Fry, was shot with 10 quarts at 1,300-15 feet and made 17 bbls. initial from

sand at 1,294-1,316 feet. Barbara Oil Co.'s No. 3 Metts, made 750 bbls. at 1,340-49 feet; No. 4 found sand at 1,308-20 feet and made 366 bbls.; No. 6 had sand at 1,344-49 feet and made 728 bbls., total depth 1,350 feet; No. 7 made 250 bbls. at 1,336-53 feet.

Curry & Moore's No. 3 Kilgore Bros. was a failure at 1,354 feet. So was Evans and others' No. 1 Teague, at 1,302 feet. Gilman and others' No. 2 Perry was also a duster at 1,290 feet. Gilman & McMurray's No. 15 Teston made 150 bbls. initial from sand at 1,180-1,204 feet. Gray and others' No. 1 Brewer found sand at 840-55 feet and made 2,000,000 feet of gas and has been shut down for orders.

Humble Oil & Refining Co.'s No. 9 Armstrong made 106 bbls. at 1,206-14 feet; No. 11 Foster found sand at 1,174-96 feet and made 15 bbls.; No. 3 Hickman had sand at 1,243-58 feet and made 32 bbls.; No. 13 Hodnett made 45 bbls. at 1,172-94 feet; No. 14 made 18 bbls. after a 10-quart shot at 1,196-1,206 feet, total depth 1,210 feet; No. 7-B was shot with 20 quarts at 1,198-1,212 feet and made 12 bbls. initial from sand at 1,192-1,212 feet, total depth 1,216 feet; No. 17-B Kilgore made 25 bbls. from sand at 1,176-93 feet; No. 1 Pugh, location was abandoned; No. 12 Wooldridge, was dry and abandoned at 1,270 feet.

Ramsey's No. 2 Henson made 175 bbls. after a 20-quart shot at 1,223-46 feet. Rex-Pyramid's No. 8 J. H. Fry found sand at 1,284-92 feet for 480 bbls., total depth 1,300 feet. Root & Rhodes' No. 1 White, location was abandoned. Shoup, Jr.'s, No. 11 Byler had sand at 1,266-92 feet and made 200 bbls. Sinclair Oil & Gas Co.'s No. 14 J. H. Fry made 200 bbls. from sand at 1,300-10 feet; No. 17 also made 435 bbls. from sand at 1,295-1,316 feet.

Sinclair Oil & Gas Co.'s No. 18 J. H. Fry, found sand at 1,301-17 feet for 435 bbls.; No. 19 was shot with 3½ quarts at 1,314-20 feet and made 168 bbls., total depth 1,323 feet. The Texas Company's No. 16 Hickman pumped 1 bbl. after a 3-quart shot at 1,237-46 feet; No. 17 had sand at 1,187-1,208 feet and made 152 bbls., total depth 1,210 feet.

The Texas Company's No. 27 Lowe made 250 bbls. at 1,273-1,303 feet; No. 28 had sand at 1,272-97 feet and made 400 bbls; No. 30 found sand at 1,248-62 feet and made 250 bbls.; No. 32 made 400 bbls. at 1,277-1,303 feet; No. 9 Pugh made 5 bbls. of oil and 20 bbls. of water at 1,348-55 feet; No. 10 pumped 75 bbls. at 1,324-33 feet; No. 11 pumped 8 bbls. after a 3-quart shot at 1,331-42 feet.

Vondran and others' No. 1 Lewis was a failure at 1,275 feet. Wentz Oil Corp.'s No. 6 Shore was shot with 10 quarts at 1,319-25 feet and made 60 bbls., total depth 1,330 feet. Lloyd and others' No. 1 Conway was a duster at 540 feet. Ryan and others' No. 1 Brooks made 2,000,000 feet of gas at 1,106-12 feet, total depth 1,116 feet.

Callahan County

Empire Gas & Fuel Co.'s No. 1 Johnson found sandy lime at 4,085-90 feet and was estimated to have 3,000,000 feet of gas with spray of sulphur water. The hole is being straightreamed. Gibson & Johnson's No. 1 Finley was dry at 1,211 feet. Mook-Texas Oil Co.'s No. 1 Ed Baum found sand at 1,667-83 feet and was flowing 260 bbls. by heads.

Prairie Oil & Gas Co.'s No. 1 Baum made 270 bbls. at 1,678-1,711 feet. Wakefield and others' No. 1 Webb found sand at 1,615-33 feet but was dry after a 30-quart shot at 1,658-1,714 feet, total depth 1,717 feet. Warren-Hays Oil Co.'s No. 1 Green was a failure at 710 feet.

Coleman County

Sebastian's No. 1 Chesley and others was a duster at 1,985 feet. Texon Oil & Land and Marland Oil Co.'s No. 1 Sealy & Smith found lime at 2,820-22 feet with a show of oil and gas and was shut down at 2,910 feet.

Eastland County

Green Production Co.'s No. 1 Jones was plugged back from 3,000 feet to 2,880 feet and was shot with 60 quarts at 2,811-22 feet, 80 quarts at 2,855-71 feet, 80 quarts at 2,811-22 feet, 80 quarts at 2,855-71 feet and made 10 bbls. of oil and 80,000 feet of gas. Amerada Petroleum Corp.'s No. 1 Ables, flowed 96 bbls. at 3,012-25 feet. Independent Oil & Gas Co.'s No. 2 Snider made 250 bbls. after a 200-quart shot at 2,876-2,976 feet, total depth 2,981 feet. West Adams Oil Co.'s No. 2 Ramsower was shot with 330 quarts at 3,270-3,367 feet and was abandoned at 3,371 feet.

Palo Pinto County

Texas Pacific Coal & Oil Co.'s No. 152 Stuart found sands at 1,500-25 feet, 1,525-80 feet and 1,585-94 feet and made 90 bbls., total depth 1,618 feet.

Shackelford County

Hadley's No. 1 Herron was a failure at 1,347 feet. Hope Oil & Gas Co.'s No. 17 Reynolds found sand at 1,449-63 feet and made 63 bbls.; Outhier's No. 1 Isenhower was dry at 800 feet. Phillips Petroleum Co.'s No. 1 Compton found black lime at 3,535-64 feet and made 6 bbls. of oil and 2,000,000 feet of gas. Roeser & Pendleton's No. 29 Cook-B-60 found sand at 1,160-71 feet and was plugged back from 1,356 feet to 1,171 feet and made 77 bbls. initial on the pump. This well was completed in February as a dry hole; No. 1 Cook-G-60 made 50 bbls. at 1,200-15 feet. Tannehill Oil Co.'s No. 5 Matthews had sand at 1,009-19 feet and made 20 bbls.

Stephens County

Hopkins and others' No. 1 Carey was shut down for orders at 2,200 feet and made 250,000 feet of gas at 2,114-18 feet. Lyman and others' No. 1 Groseclose found salt water sand at 2,460-90 feet and is drilling 2,495 feet. Morton and others' No. 1 Fambrough was temporarily abandoned at 1,907 feet.

WEST TEXAS COMPLETIONS

Borden County

Julian Petroleum Corp. and R. W. Penn's No. 1 A. J. Long was plugged and abandoned at 3,900 feet, having picked up a hole full of sulphur water at 3,795 feet.

Crane County

Eastland Oil Co. and Collett's No. 1 University was officially completed for 3,900 bbls. at 2,890-2,907 feet. Magnolia Petroleum Co.'s No. 5 O'Keefe-Uni-

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Geologists Express Appreciation

TULSA GEOLOGICAL SOCIETY

TULSA, OKLAHOMA March 29, 1927.

The Editor,
Oil & Gas Journal,
Tulsa, Okla.

Dear Sir:-

The editorial "Two Heads Better than One" which appeared in the Oil & Gas Journal of March 17th has received a great deal of most favorable comment, both from members of the Tulsa Geological Society and from members of the American Association of Petroleum Geologists in attendance at their Twelfth Annual Convention just closed. This editorial expressed an appreciation of Petroleum Geology, an understanding of the aims and workings of the American Association and stressed the importance of national technological conferences, in a manner most gratifying to all petroleum geologists.

This is the first time the A.A.P.G. Convention has received such recognition in a nationally read trade journal and as host to the Convention, the Tulsa Geological Society has voted unanimously that its sincere appreciation of this editorial and many other courtesies rendered, be officially communicated to the Oil & Gas Journal.

Very truly yours,

TULSA GEOLOGICAL SOCIETY,

A. P. Beasley

ALB/JJR

President.

Late News from the Fields

BIG PANHANDLE WELL

AMARILLO, Tex., Mar. 29.—The Prairie Oil & Gas Co.'s No. 2 Merchant, Section 37, Block 47, Hutchinson County, flowed 110 bbls. per hour during the first 12 hours, from sand at 2,940-49 feet. In Carson County, the Marland Oil Co.'s No. 1 Garner, NE cor. Section 93, Block 4, flowed 35 bbls. the first hour, from sandy lime at 3,114-15 feet, and will be deepened. This extends the pool westward. In Wheeler County, Continental Oil Co.'s No. 2 Company, Section 12, Block 27, flowed 750 bbls. from 2,265-76 feet. In Winkler County, Southern Crude Oil Co.'s No. 1 Hendricks started making gas at 2,705 feet, estimated at 250,000 feet, and is now drilling at 2,740 feet. In Crane County, Humble Oil & Refining Co.'s No. 2 University flowed 5,048 bbls. first 24 hours.

A new Ranger Pool appears opened by Mook-Texas Oil Co.'s No. 3 Sibley, in the southwest corner of their 50 acres, Lot 8, Van Norman Subdivision, about 7 miles due south of Ranger in Eastland County. Sandy lime was just touched at 3,060 feet and the well is flowing by heads every 5 to 10 minutes at the rate of 400 bbls. It is shut down for storage.

OKLAHOMA

The new Hunton lime well owned by C. J. Wrightsman and others in Section 30-7-4, the Maud district of Pottawatomie County, is flowing 3,800 bbls. daily and has evoked great interest in this section.

In the Bowlegs district of Seminole, the Indian Territory Illuminating Oil Co.'s No. 2 Livingston, SW cor. SE NW, Section 15-8-6, is flowing 5,600 bbls. daily from Wilcox sand 4,109-35 feet. This is a direct west offset to No. 1 Livingston.

Mid-Continent Petroleum Corp.'s No. 1 McKinley, SE cor. NE SW NE, Section 9-9-5, made 330 bbls. the first 7 hours from Wilcox sand 4,358-60 feet. This is a rather interesting development in the Earlsboro region. It has caused a revision of opinion of what may be expected northwest of the present limits of production.

In the Bowlegs territory, the Carter Oil Co.'s No. 1 Bowlegs, NW cor. SE SW, Section 15-8-6, has extended the

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Panhandle Wildcats Attract Notice

Marland Well, 7 Miles From Production, Makes 10,000,000 Feet of Gas and Slight Spray of Oil

By James H. Dameron
Staff Correspondent, Texas Panhandle Fields

FORT WORTH, Tex., Mar. 28.—Half a dozen wildcats in the Panhandle, one as far as 7 miles from production and others at lesser distances, all broke into the ranks of sensational tests when they showed oil and gave hopes of extending production or opening new areas for drilling. At the same time wells in the proven territories of the Panhandle were bidding for recognition.

Most interesting of the wildcats is Marland Oil Co.'s No. 1 Carver, Section 6, William Heath Survey, north of the Canadian River and in western Hutchinson County close to the Moore County line. It is making 10,000,000 feet of gas from 3,250 feet and reported to be making a slight spray of oil. The well made its first gas at 2,930 feet and the 6,000,000 feet of gas was increased when the bit drilled to 3,215-50 feet. The elevation is 3,365 feet and the bottom of the hole is 115 feet above sea level. Six and five-eighths-inch casing is to be run and the hole is being reamed for a casing seat. The well makes a slight spray of oil when the tools are pulled out. The lime was topped at 834 feet above sea level.

No. 1 Carver is 7 miles northeast of the Cadman well in Section 68, Block L, Moore County, and 12 miles north of Panhandle production north of the Canadian River. The Marland Co. has a block of approximately 5,000 acres including the Heath land in Hutchinson County and other leases in Moore County. With the 10,000,000-foot gas showing acreage prices ballooned and it is reported that one deal was made for some nearby acreage that sold for $150 cash and $350 in oil. However, the report was not confirmed nor was the identity of the buyers and sellers learned.

Moore County Test.

Another interesting Panhandle wildcat is Humble Oil & Refining Co.'s No. 1 Kilgore, NW cor. Section 28, Block 44, south of Dumas in Moore County. Five and one-quarter-inch casing was set in lime shell found at 3,605 feet. The test is being drilled in soft lime and granite wash at 3,635 feet.

Northwest of the Cadman well in Moore County, Morton & Co.'s No. 1 Rupert, Section 191, Block 3-T, is estimated to be making between 40,000,000 to 50,000,000 feet of gas from lime at 2,805-55 feet. It is about 20 miles west of the Hutchinson County line and the lime was found there 1,034 feet above sea level.

May Extend Wilcox-Pampa

Gulf Production Co.'s No. 1 Saunders, SE SW Section 40, Block 3, may extend the Wilcox-Pampa Pool to the northeast. The well had a showing of oil at 2,955 feet and 10-inch pipe is being pulled preparatory to running 5-inch pipe. Elevation is 3,085 feet.

Six miles northwest of Wilcox-Pampa production the Pampa Petroleum Co.'s No. 1 Leopold, SE cor. Section 141, Block 3, Gray County, is an outstanding test in that county. The test caught sandy lime at 3,280 feet and 50 feet of oil rose in the hole and at 3,345 feet 250 feet of oil rose in the hole. Monday afternoon the well was reported to be spraying oil. The elevation is 3,239 feet and the well is producing from below sea level. It is the second well in that general area producing from below sea level.

Five miles east of the Wilcox-Pampa Pool Marland Oil Co.'s No. 1 Fee, Section 11, Block 3, swabbed 200 bbls. the first 10 hours after a 120-quart shot at 2,915-84 feet; total depth 3,004 feet. No. 1 Fee is a direct west offset to Roxana Petroleum Corp.'s No. 1 Finley, which is pumping 40 bbls. daily from 3,012-19 feet. No. 1 Finley is producing from below sea level.

Deepest Drilling

A mile southwest of the Rock Island Oil Co.'s No. 1 Starnes, Dominion Oil Co.'s No. 1 Jasper, Section 23, Block M-23, is drilling lime at 3,120 feet, without an increase in oil or gas. The test has 1,200 feet of oil in the hole from 3,033-58 feet. The deepest drilling test in Panhandle is Big Bend Oil Co.'s No. 1 Lederick, Section 7, Block A-5, Roberts County, which is drilling broken lime in a five-inch hole at 4,886 feet.

Roxana Petroleum Corp.'s No. 1 Bryan, SW cor. SE Section 107, Block 4, in the Roxana Pool in Carson County, was the most sensational producer in the field during the week. The well was given a 160-quart shot at 3,189 to 3,240 feet and started off with 1,840 bbls. production the first 24 hours. It is a little more than a quarter of a mile northwest of the Roxana Corp.'s discovery well.

In the Shamrock Field, Marland Oil Co.'s No. 1 Bentley, SW cor. NE Section 42, Block 24, H. & T. C. Survey, flowed 40 bbls. of 39 gravity oil per hour for the first 24 hours from granite wash at 2,328-35.

New Production Normal

Operations in the Panhandle during the week showed a slight decrease and that field, like numerous others, is beginning to feel the effect of curtailed operations because of the slump in crude prices. Production in the Panhandle declined sharply during the week although new production remained close to the field's normal new production. Daily average production declined 3,900 bbls. The daily average production of the field was 120,920 bbls., making the 1,057 wells average 114.7 bbls. daily.

A few wells in the Panhandle have been shut down by agreement among the operators and during the week several locations were temporarily abandoned. Reports early this week gave the Panhandle only three new locations for the past seven-day period. Summarized there are 43 locations in the field, 45 derricks being built, 33 derricks up, 38 being rigged, 345 wells drilling and 67 wells shut down.

During the past week, Panhandle producers ran more than 70,000 bbls. of crude daily to storage. On March 1, there was 12,300,000 bbls. of Panhandle crude in storage. At that time there was 21,342,000 bbls. of steel storage in the field and 1,555,000 bbls. more of steel tankage was being erected.

The Humble Pipe Line Co. has started taking up its 4-inch line from the Shamrock Field in Wheeler County to the loading rack at Lela. The loading rack will be taken down. In its place a new 6-inch line will be built from the Humble company's station in Section 18, Block 27, H. & G. N. Survey, Wheeler County, to the new pump station in Section 41, Block 25, Gray County. The line will be built on in a southwesterly direction from the new station to the Humble company's tank farm in Rockledge in Donley County. The new line will serve a greater territory and be open to producers in the Nabob, Travis and Empire areas.

Texas Panhandle Completions

Carson County

Only three wells were completed in Carson County during the week and Marston Oil Co.'s No. 1 E. F. Bryan, Section 92, Block 4, led the group with an initial flow of 160 bbls. from 3,140-3,220 feet. Nunn & McAuley's No. 2 Bryan, SE cor. NW SW, Section 107, Block 4, is making 75 bbls. naturally from 3,205-12 feet. Empire Gas & Fuel Co.'s No. 1 Lane, NW cor. SW, Section 72, Block 4, is a 25,000,000-foot gas well at 2,325-2,750 feet.

Hutchinson County

Phillips Petroleum Co.'s No. 3 J. J. Perkins, Section 2, Block 1, topped the pay at 2,972 feet and drilled to 2,997 feet. The well was shot with 60 quarts at 2,969-2,990 feet and was completed as a 75-bbl. well. Phillips company's No. 5 Perkins-George, Section 26, Block 47, topped the pay at 2,810 feet and drilled to 2,861 feet and made 125 bbls.. The well was given a 140-quart shot at 2,806-56 feet and was completed flowing and swabbing 175 bbls. daily. Same company's No. 2 Johnson-Wiley, Section 70, Block 46, was a 5-bbl. well at 2,657-82 feet and was shot with 60 quarts at 2,657-78 feet in lime and responded making 110 bbls.

On the Phillips Petroleum Co.'s Whittenburg leases, three wells were completed. No. 7 J. A. Whittenburg-Burg, Lot 10, M. Whitley Survey, is good for 75 bbls. on the pump after an 80-quart shot in lime at 2,958-86 feet; total depth 2,950 feet. No. 4 J. A. Whittenburg-Haines, Lot 20, M. Whitley Survey, is producing 1,200 bbls. daily on the swab and by agitating and from lime topped at 2,918 feet; total depth 2,935 feet. Phillips company's No. 6 J. A. Whittenburg-Patsburg, Section 67, Block 46, made 200 bbls. from lime at 2,844-86 feet and was shot in that formation with 140 quarts and completed as a 450-bbl. well.

Dixon Creek Oil Co.'s No. 52 H. E. Smith, Section 14, Block Y, was shot in lime at 2,844-98 feet and is flowing 300 bbls. Kistler Oil Co.'s No. 3 Johnson Brothers, Section 21, Block Y, topped the pay at 2,900 feet and was drilled to 2,919 feet. The well's initial production was 800 bbls., 20 per cent salt water. J. P. McKenny's No. 2 J. F. Weatherly, Section 19, Block Y, is making 75 bbls. daily on the swab after a 60-quart shot at 2,921-31 feet; total depth 2,946 feet. Midwest Exploration Co.'s No. 2 Johnson Brothers, Section 70, Block 46, was good for only 10 bbls. in lime at 2,743-2,800 feet and was shot with 170 quarts and production increased to 105 bbls. on the swab.

Location Abandoned

Location for Pantex Oil Co.'s No. 10 J. A. Whittenburg, was abandoned. Prairie Oil & Gas Co.'s No. 10 Johnson Brothers-B, Section 68, Block 46, topped the pay at 2,840 feet and was drilled to 2,893 feet. Lime at 2,826-77 feet was shot with 40 quarts and the well was completed as a 50-bbl. pumper. Prairie Oil & Gas Co.'s No. 5 J. A. Whittenburg, Lot 15, M. Whitley Survey, is swabbing 30 bbls. from 2,830-78 feet. Prairie company has abandoned locations for Nos. 5, 6, 9, 10 and 13 M. Weatherly. The rig was abandoned for

(Continued on Page 182)

WILDCAT OPERATIONS IN PANHANDLE

Week Ending March 26, 1927

ARMSTRONG COUNTY

Company, Well, Farm Name, Section and Block—	Remarks—
United Oil & Trust Co.'s No. 1 J. P. Reck, Sec. 162, Blk. 4, H. & G. N. Sur.	Spudded and shut down.

BRISCOE COUNTY

C. S. Rice's No. 1 J. C. Anderson, SE cor. NW NW Sec. 23, Blk. B-3, B. S. & F. Sur.	Drilling 1,035 ft.
Smith & Baker's No. 1 J. W. Owens, Sec. 11, Blk. GC2.	Location.

CARSON COUNTY

Amatex Oil Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y.	Shut down 1,980 ft.
Champlin Ref. Co.'s No. 2 E. F. Bryan, Sec. 92, Blk. 4.	Set 6-in. 3,011 ft.
Delmar Oil Co.'s No. 1 T. D. Lewis, SW cor. Sec. 115, Blk. 4	Show oil in lime at 3,170 ft.; drilling 3,172 ft.
Empire G. & F. Co.'s No. 1 Burnett-B.	Rig
Empire G. & F. Co.'s No. 1 Burnett-C.	Fishing for tools 96 ft.
Empire G. & F. Co.'s No. 1 C. R. Garner.	Set 15-in. 230 ft.
Empire G. & F. Co.'s No. 2 M. P. Co. fee-A, NE cor. SW Sec. 91, Blk. 4	Drilling 2,375 ft.
Empire G. & F. Co.'s No. 3 M. P. Co. fee-A, SE cor. SW Sec. 91, Blk. 4	Drilling 550 ft.
Gulf Prod. Co.'s No. 1 Noel, SE cor. SW Sec. 198, Blk. 3.	Drilling 2,545 ft.
J. K. Hughes Developing Co.'s No. 1 F. E. Percival, NE cor. E ½ NW Sec. 199, Blk. 3	Drilling 2,890 ft.
J. K. Hughes Developing Co.'s No. 2 F. E. Percival, NW cor. E ½ NW Sec. 199, Blk. 3	Cleaning out 970 ft.
Marland Oil Co.'s No. 1 Burnett-J, C NE NE Sec. 121, Blk. 5	Fishing 990 ft.
Marland Oil Co.'s No. 2 J. W. McConnell	Spudding.
Marland Oil Co.'s No. 1 C. R. Garner, NE cor. Sec. 93, Blk. 4	Set 6-in. at 3,074 ft.
Marland Oil Co.'s No. 2 C. R. Garner.	Drilling 775 ft.
Marston Oil Co.'s No. 1 J. L. Noel.	Drilling 1,610 ft.
McMan O. & G. Co.'s No. 1 J. L. Noel, SW cor. SE SE Sec. 198, Blk. 3	Cleaning out 2,605 ft.
McMan O. & G. Co.'s No. 1 F. E. Percival, NE cor. W ½ NE Sec. 199, Blk. 3	Drilling 2,730 ft.
McMan O. & G. Co.'s No. 2 F. E. Percival, NW cor. W ½ NE Sec. 199, Blk. 3	Shut down 2,608 ft.
Navajo Oil Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y.	Drilling 1,750 ft.
Osborne et al's No. 1 F. E. Percival, NW cor. E ½ NE Sec. 199, Blk. 3	Drilling 2,315 ft.
J. T. Parks' No. 1 J. W. McConnell, Sec. 67, Blk. 4	Drilling 1,900 ft.
J. T. Parks' No. 2 J. L. Noel, SW cor. W ½ SE Sec. 198, Blk. 3	Set 6-in. at 3,024 ft.
Prairie O. & G. Co.'s No. 1 Bryan, Sec. 107, Blk. 4.	Drilling 3,260 ft.; Small show of oil at 3,247-60 ft.
Prairie O. & G. Co.'s No. 2 Bryan, Sec. 107, Blk. 4.	Shut down 402 ft.
Prairie O. & G. Co.'s (was Marland Oil Co.'s) No. 1 McConnell, Sec. 67, Blk. 4	Drilling 675 ft.
Prairie O. & G. Co.'s (was Marland Oil Co.'s) No. 2 McConnell, Sec. 67, Blk. 4	Spudding.
Prairie O. & G. Co.'s No. 2 J. W. McConnell-A, NE cor. SE Sec. 67, Blk. 4	Drilling 2,250 ft.
Prairie O. & G. Co.'s No. 3 J. W. McConnell-A, NE cor. NW SE. Sec. 67, Blk. 4	Drilling 1,875 ft.
Prairie O. & G. Co.'s No. 4 J. W. McConnell-A, SE cor. Sec. 67, Blk. 4	Drilling 1,200 ft.
Prairie O. & G. Co.'s No. 1 J. W. McConnell-B, SW cor. E ½ NE Sec. 67, Blk. 4	Drilling 2,300 ft.
Prairie O. & G. Co.'s No. 2 J. W. McConnell-B, SE cor. NE Cec. 67, Blk. 4	Drilling 2,400 ft.
Prairie O. & G. Co.'s No. 1 F. E. Percival, NW cor. W ½ NW Sec. 199, Blk. 3	Drilling 1,320 ft.
Prairie O. & G. Co.'s No. 2 F. E. Percival, NE cor. W	

(Continued on Page 124)

[DUNN TOOLAGRAM]

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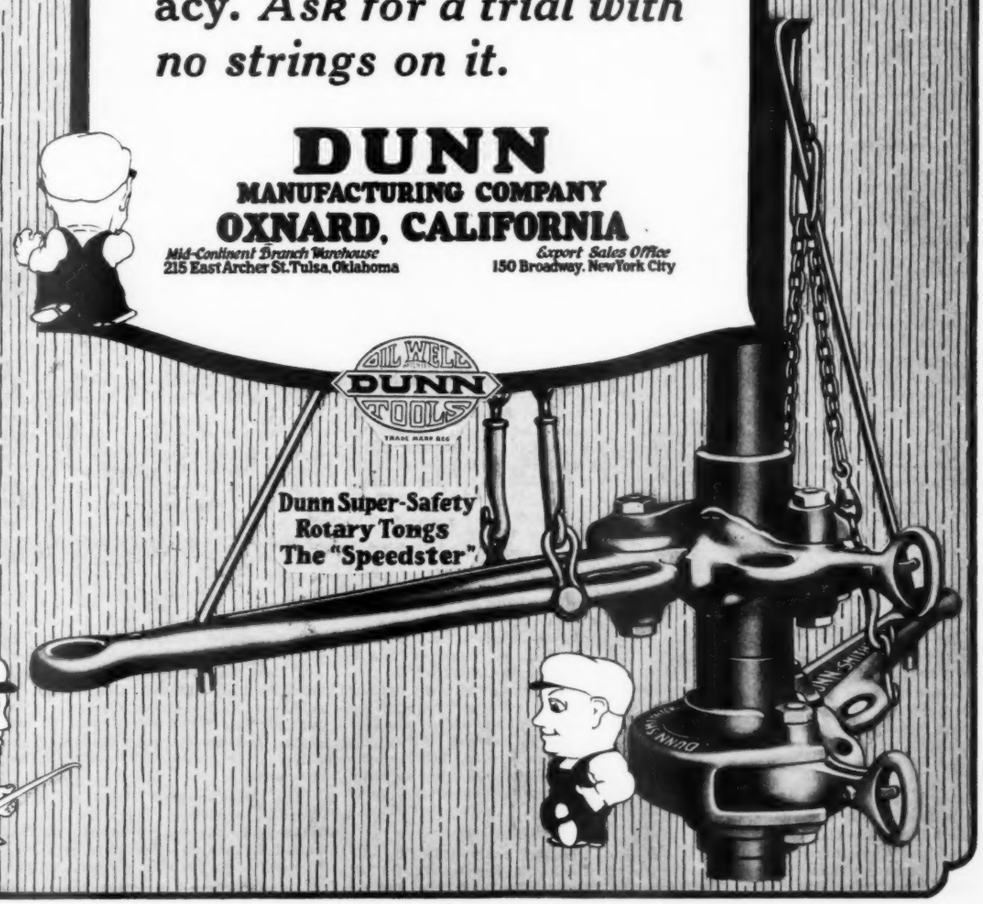


Dunn Super-Safety Rotary Tongs The "Speedster"

Open New Pool in the Yeager Area

Seminole at New Peak. Bowlegs District Now Most Promising Area. Searight Declines

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

With a new peak in production for the Seminole Pool, several new wells in the Bowlegs section of that great field, the decline of the Searight section of Seminole, the discovery of a new Dutcher sand pool by the Independent Oil & Gas Co. and T. A. Johnston Co. in the Yeager area of Hughes County, and a good Hunton lime well in the Maud area of Pottawatomie County, the week passed quietly along in the Oklahoma fields.

The Greater Seminole Field attained a new high, making 336,000 bbls. on Sunday morning of this week. The increase was chiefly due to relieved transportation conditions in the area, and there is little doubt that this figure could have been surpassed at least 25,000 bbls. had conditions allowed a greater freedom in production by adequate transportation conditions.

The Carter Oil Co. still had the lion's share of production at Seminole, and on one day of last week an output of 60,000 bbls. The Bowlegs or 8-6 section of Seminole is the most promising area of the Mid-Continent Field today and last week averaged 28,000 bbls. daily from 10 wells. With no dry holes in the area, and the majority of wells running high according to present calculations, the Bowlegs should be furnishing an additional 50,000 bbls. of production before another 60 days have elapsed. The disappointment caused by the failure of wells in the Earlsboro region will be more than offset by the production of Bowlegs, and with Seminole proper producing 228,000 bbls. daily, the production of the entire area should reach and maintain 350,000 bbls. for a good part of the spring.

Shipments Increase

The Oklahoma crude situation continues in fair shape considering the heavy production, and approximately 150,000 bbls. daily are being put into storage. The shipment of crude oil by purchasers shows an increase which is slightly more than normal.

Tank cars are being used to better advantage in handling surplus Seminole oil, and about 22,000 bbls. daily is being removed from the field by this means. The Oklahoma Pipe Line Co.'s new 10-inch line from Council Hill to Seminole has been flanged, and oil is now being pumped into it. Some time this week the usual line tests will be completed and it will be placed in service. By the end of the week it should be handling 20,000 bbls. daily and after two weeks or so it should be running at capacity and adding 35,000 or 40,000 bbls. daily to the pipeline outlet of the field. This is merely another notch in a vicious cycle, for about the time the Oklahoma line is running capacity, there should be 15 wells completed and their output should be sufficient to offset the increased line capacity. The Empire and Pure pipe lines are under construction, and 30 days should witness their completion.

New Pool in Yeager

The Independent Oil & Gas Co. and others have opened a new pool in the Yeager area of Hughes County. Their No. 1 Long, an old gas well drilled deeper, found what is thought to be one of the Dutcher sands at 3,430-38 feet and the well is flowing 550 bbls. daily. The Independent Pipe Line Co. has connected to the well and the production will be piped to the company's refinery at Okmulgee. The Yeager area has been more or less under observation for about 18 months when a well drilled by the Yeager Oil Co. in Township 8-9 made about 400 bbls. Since that time sporadic drilling has been done in all parts of the township with limited results. The new pool may have a good area, and the Independent Oil & Gas Co. is drilling three wells in this vicinity.

In the Maud area of Pottawatomie County, C. J. Wrightsman and others have one of the best Hunton lime wells found in central Oklahoma in No. 1 Doyle, NW cor. NE NW, Section 30-7-4, which is flowing 2,700 bbls. daily from sand at 3,786-93 feet.

The daily average production of the Seminole Field, by companies and leases, for the week ending March 18 is given below:

Company and Lease—	Wells	Prod.
Amerada:		
Anderson	2	10,501
Fixico	4	5,145
Killingsworth	4	2,674
Rascoe	1	4,005
Rentie	4	3,756
Total		26,081
Atlantic Oil Prod.:		
N. Cudjo	3	8,026
J. Cudjo	2	175
Total		8,201
Barnsdall Oil Co.:		
Carter	9	13,375
Jones	2	10,911
Total		24,286
Carter Oil Co.:		
B. Carter	2	150
J. Carter	4	135
F. Carter	4	1,900
R. Cudjo	3	6,965
W. Cudjo	1	Off
Davis	4	5,305
Frazier	2	3,925
Gillard	1	240
Grisso	6	4,885
Kiker	1	Off
Knappenberger	4	3,330
M. Killingsworth	6	1,135
G. Killingsworth	3	4,015
Lukes	2	5,950
Scott	1	15
Stewart	2	1,535
Strothers	1	3,405
Walker	1	6,580
Bowlegs	1	695
Total		50,165
Empire Gas & Fuel Co.:		
Lacey	1	6,059
Wilson	2	4,991
Total		11,050
Gypsy Oil Co.:		
Bora	1	220
Butler	3	2,442
Carter	8	3,772
Cudjo	1	1,530
Earl	1	2,622
Fixico	5	297
Harjo	1	1,644
Mission	1	Off
*State land	3	17,821
Walker	1	3,365
Wolfe	5	4,865
Total		38,698

*Half Amerada.

Independent Oil & Gas:		
P. Fixico	2	1,644
Independent-Garland:		
T. Fixico	8	1,950
Independent-Interocean:		
Jones	4	1,512
Indian Terr. Illum. Oil Co.:		
Bowlegs	7	4,750
Davis	1	3,115
Goodin	3	1,119
Harjo	4	1,588
James	5	1,845
Livingston	1	5,111
Reed	3	43
Total		17,571
Kingwood-Roxana:		
Johnson	4	5,031
Magnolia Pet. Co.:		
Franks	2	2,575
Mid-Cont. Pet. Corp.:		
Grayson	3	7,145
Rentie	7	4,265
Tayeche	7	820
Total		12,230
Mid-Kansas Oil & Gas Co.:		
Cully	1	397
Johnson	1	491
Total		888
Philmack-McCulloch:		
Butler	1	1,665
Phillips Pet. Co.:		
Strothers	1	Off
Prairie Oil & Gas Co.:		
Baker	1	550
Carter	1	60
Gross	5	270
Kinkade	6	7,085
Spencer	1	35
Strothers	5	13,075
Total		21,075
Pure Oil Co.:		
Strothers	16	25,752
Roxana Pet. Corp.:		
Harber	1	679
Lashley	1	124
Taylor	1	Off
Total		803
Searight et al:		
Youngblood	2	Off
Sinclair Oil & Gas Co.:		
Adams	1	15
Carter	2	70
Cudjo A	6	6,200
Cudjo B	3	6,690
*Fixico	2	2,225
Polly	1	1,075
Total		16,275

*Half Transcontinental.

T. B. Slick:		
Cudjo	1	4,933
Franks	6	8,848
Giblet	1	941
Total		14,722
Superior Oil Co.:		
Cudjo	4	5,471
The Texas Company:		
Mayhue	1	485
Tidal-Osage Oil Co.:		
Carter	4	4,325
Fixico	5	8,765
Harjo	5	565
Mahardy	4	1,045
Tayeche	2	3,740
Total		18,440
Turman Oil Co.:		
Cudjo	4	7,774
Grisso	1	2,390
Jones	1	68
Total		10,232
Twin State Oil Co.:		
Jennings	1	260
Earlsboro shallow	22	5,200
Grand total	296	322,412

For convenience the various sectors of the greater Seminole Field in future will be mentioned by names instead of by townships in making the summary of Seminole production. This is caused by wells being close to or within the borders of an adjoining township when they are far from the rest of the production in their own township. The four townships, 8-6, 9-6, 10-6 and 9-5, in future will be mentioned as Bowlegs, Seminole, Searight and Earlsboro Pools, respectively. Their daily average production for the week ending March 18 is:

Pool—	Wells	Prod.
Seminole	231	228,528
Searight	24	27,875
Bowlegs	10	28,945
Earlsboro	31	37,064
Total		322,412

Carter County

Magnolia Petroleum Co. has built the

ACTIVITY IN FARMINGTON AREA ON INDIAN PROCLAMATION LANDS

By Special Correspondent

FARMINGTON, N. Mex., Mar. 26.—The passage of the law by the last Congress defining the rights of prospectors for oil and gas on what is generally known as Indian Proclamation Lands has had a salutary effect in this section. These Indian lands are those which by presidential proclamation have been set aside from the then public domain, tracts adjoining treaty reservations, and thus extending the size of the Indian reservation so enlarged. The leasing laws applying to the public domain did not apply to these lands nor did the laws governing the leasing of Indian lands, so it took a new law to define the procedure necessary for the development of these lands. Such a law was passed by the last Congress and was signed by the President on March 3.

When Fall was Secretary of the Interior, he ruled that these lands were part of the public domain save for the surface rights, and could be leased and developed under the general leasing act. A great many filings were made under this ruling, and on the Boundary Butte structure, 90 miles west of Farmington, commercial production was encountered by the Southwestern Oil Co. This company was made up of a pool of some of the big operating companies who wished to see the territory tested and were willing to bear part of the expense. Attorney-General Stone ruled against the Fall leases, and all operations were stopped on the so-called proclamation lands. The new law provides that rules and regulations are to be promulgated by the Secretary of the Interior to carry out the provisions of the act; and as soon as these are made public, active development work will be started. Already a number of lease and permit holders have visited their holdings, planning to start work as soon as the rules are made known.

Drilling Deal

A deal has just been closed by the terms of which the Senate Oil Co. of Amarillo, Tex., takes over the drilling operations of the Congress-National companies in the Kutz Canon district. The Congress Oil Co. and the National Petroleum Co. of Denver each retain a third interest in the well, and the well is to be completed by the Senate Oil Co. Work to this end was started this week. The Senate Oil Co. has also secured additional acreage close in to the well. The deal was made by Judge D. S. O'Keefe, attorney for the Senate Oil Co., and Glen L. Coffe, a director and field man. The new company will make an effort to recover the tools which were lost at a depth of 1,728 feet last October. The well is located in Section 34-29-11 on the Garland permit and is 12 miles southeast of Farmington. Favorable showings of oil and gas have already been encountered in the well and production is expected in the Picture Cliff sand, which is believed to be only a short distance below the present bottom of the well.

James I. Harvey of Wichita Falls, Tex., is here planning to commence operations on the leases he holds in the Ute pasture, about 20 miles northwest of Farmington. A rig will be put on his property as soon as the roads are so it can be hauled in, and drilling will start as soon as the rig is up. He expects to pipe gas from the Childers well to use for fuel.

Bloomfield District

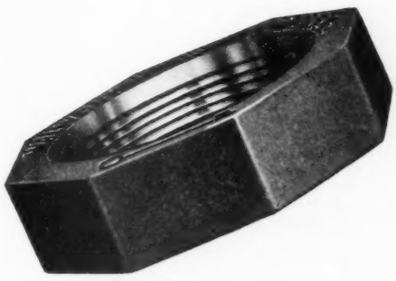
Electric power has been installed in the Bloomfield district with a generator at the Smith-Kittel refinery, and power and light for the refinery and pumping wells is being utilized. Plans are under consideration for the enlargement of this refinery, but whether this will be done at the present site or it be moved to a point on the railroad has not yet been determined.

The Mid-Continent Oil Co., C. L. Wendt, president, operating in the Bloomfield district, Section 22-29-11, have been delayed a few days by a break in machinery, but this has been repaired

(Continued on Page 158)

THE KEWANEE UNION

1 BOTTOM
of steel; *forged*, not cast. Makes tight joint against softer bronze thread-end.



2 RING
High grade malleable iron that will stand thousands of disconnections.

5 Points of Advantage

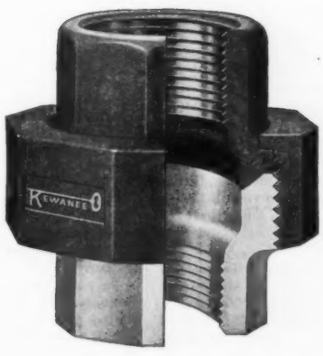
1. Bronze-to-iron thread connection—no corrosion
2. Bronze-to-steel ball-joint seat—no gasket
3. Solid three-piece construction—no inserted parts *
4. Tested by compressed air under water—no defective parts
5. Easily disconnected with a wrench—no force required

3 THREAD END
Forged manganese bronze. Threads can't corrode. Disconnects easily.

Just 3 parts*

Making up a union with a gasket is an unnecessary nuisance. No inserted parts and no packing are needed to make a leakless connection with a Kewanee Union. If the ring is tight the joint is tight; it has to be because the seat is a ball-joint. The steel, iron and manganese bronze used in these simple parts are all unusually high quality to assure longer service under the worst conditions.

Kewanees won't leak and can't corrode. Thousands of doubters have proved this statement as easily as you can by specifying Kewanee Unions on your next job.



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rig for No. 5 E. Hardin, C S half N half S half, Section 18-1s-3w.

Magnolia Petroleum Co.'s No. 9 Adams, NE cor. Section 10-2s-3w, had a series of sands from 2,570 feet to 3,042 feet, total depth 3,115 feet, and is producing 150 bbls. No. 10 Adams, NW cor. NE SE, Section 3-2s-3w, was completed for 90 bbls. at the total depth of 3,085 feet, producing from a series of sands at 2,342-3,005 feet. No. 3 Ida Bumpass, NW cor. SE, Section 33-1s-3w, is producing 74 bbls. from broken sand at 2,434-2,725 feet. Merrick & Cameron's No. 1 Denny, SW cor. NW SW, Section 20-1s-3w, is swabbing 95 bbls. from broken sand at 2,964-3,071 feet. Magnolia Petroleum Co.'s No. 4 E. Hardin, NE cor. SE SW, Section 18-1s-3w, is making 350 bbls. from broken sand at 2,704-3,200 feet. Humble Oil & Refining Co.'s No. 11 Jordan, SE cor. NW SW, Section 18-1s-3w, is producing 212 bbls. from sands at 2,727-34 feet and 2,785-2,801 feet.

Creek County

Silurian Oil Co.'s No. 3 Starr, NE cor. Section 17-18-7, is rigging up to deepen. No. 23 Starr, CWL E half NE NE, Section 17-18-7, is a rig. Mid-Continent Petroleum Corp. has the rig up for No. 1 Dean, SE cor. NE NE, Section 13-15-7. G. T. Roach's No. 1 Beavers, SW cor. NW NW, Section 35-18-9, is a rig. Cole and others' No. 1 Strip, SW cor. NW NE, Section 22-18-11, an old well, is drilling deeper at 2,237 feet. Blankenburg and others have the rig up for No. 1 Townsite, Lot 7, Block 24, Section 6-18-12, in the Oakhurst Pool. A. B. Ice and others have built the rig for No. 1, Lots 8 and 9, Block 24, Section 6-18-12, in the Oakhurst Pool. The machine is on the ground for No. 1, Lot 34, Block 24, Section 6-18-12, Oakhurst Pool. S. J. Smith and others have moved a machine to the location to deepen No. 2 S. Fife, NE cor. NW SW, Section 3-17-11. The rig is up for No. 5 T. Fife, CEL NE SE, Section 4-17-11.

McCulloch and others' No. 1 Lasley, NE cor. SE, Section 4-17-8, is dry and abandoned in sand at 3,456-90 feet. Empire Gas & Fuel Co.'s No. 3 Lindley, SE cor. NW SW, Section 30-15-8, is producing 41,000,000 feet of gas from sand at 3,247-58 feet. Lima Oil & Gas Co.'s No. 4 Benjamin, NE cor. SW SW, Section 30-15-8, a location, has been abandoned. Sherry and others' No. 1 Unallotted, CSL N half SE, Section 2-19-9, is a dry hole at 2,647 feet. Riverland Oil Co.'s No. 9 Land, SE cor. SW NW, Section 1-18-11, is dry in the Turkey Mountain sand at 2,098-2,109 feet. The Texas Company's No. 14 Land, NE cor. NW SW, Section 1-18-11, is making 50 bbls. from the Wilcox sand at 2,058-69 feet. Savoy Oil Co. and others' No. 1, Lots 1 and 2, Block 23, Section 6-18-12, in the Oakhurst Pool, was completed for 25 bbls. in the Turkey Mountain sand at 2,141-53 feet. L. C. Wheeler and others' No. 1, Lot 29, Block 17, Section 6-18-12, Oakhurst Pool, made 10 bbls. after a shot of 10 quarts in the Wilcox sand at 2,148-2,205 feet. Bu-Vi-Bar Petroleum Co.'s No. 1 Harjo, C SW NE, Section 18-17-9, an old well deepened to the Wilcox sand, is dry and abandoned at 3,440 feet. Whitten & Wilcox's No. 3 Wrightman, SW cor. NE, Section 11-17-10, an old well drilled deeper, is making 15 bbls. from the Red Fork sand at 1,952-70 feet. Love & Myers' No. 2 Hendrickson, NE cor. SE NW, Section 21-16-9, had the Dutcher sand from 2,980-3,032 feet and after a shot of 12 quarts flowed 15 bbls. Sherry and others' No. 1 Bowman, SW cor. NW NW, Section 7-16-12, is dry in the Wilcox sand at 2,765-76 feet. The Texas Company's No. 1 Unallotted, SW cor. SE NE, Section 31-15-9, is a 42-bbl. well in the Layton sand at 1,203-48 feet. Atlantic and Phillips Petroleum Co.'s No. 1 Kimble & Reading, NE cor. Section 10-14-10, made an initial of 30 bbls. from the Dutcher sand at 2,663-2,715 feet, after it was shot with 15 quarts.

Garfield County

Sinclair Oil & Gas Co. is rigging up No. 74 Walker, SW cor. NE SE NE, Section 13-22-4w, in the Garber Pool. The rig is being built for No. 29 South Walker, NW cor. SE SE, Section 24-22-4w. Sinclair Oil & Gas Co.'s No. 22 Hoy, NW cor. SE NE, Section 25-22-4w, Garber Pool, made 297 bbls. from sand at 2,280-97 feet in 21 hours.

Garvin County

Guy Fisher's No. 1 Paxton, NE cor. SW, Section 25-3-1w, is dry and abandoned at 3,000 feet. Roy Burk's No. 1 Piles, SW cor. NW SE, Section 35-3-2w, a location, has been abandoned.

Kay County

Miller Brothers made location for No. 1 Anderson, NW cor. SE, Section 10-25-1. Comar Oil Co.'s No. 4-W Day, NE cor. SE SE, Section 20-29-1w, has been completed for 66 bbls. in the Wilcox sand at 3,325-3,420 feet. No. 1 Judd, NE cor. Section 29-29-1w, an old well deepened from 3,454 feet to 3,517 feet is averaging 9 bbls. Marland Oil Co.'s No. 2 White, NE cor. SE NW, Section 17-29-1, was completed for 15,000,000 feet of gas in sand at 1,950-70 feet. Braman Oil Co.'s No. 2 Townsite, SCL SW, Section 5-28-1w, in the Braman Townsite Pool, deepened to 2,876 feet and plugged back to 2,876 feet where a shot of 20 quarts was made and the well abandoned. Hag Oil Co.'s No. 1 Powers, NE cor. NW, Section 29-27-1, is making 150,000 feet of gas from sand at 840-900 feet. Mississippi Valley Oil Co.'s No. 2 Balzer, C SE NE, Section 3-27-2, has been abandoned at 4,007 feet in the Wilcox sand topped at 3,930 feet. Blackwell Oil & Gas Co. and Marland Oil Co.'s No. 3 Kaney, NE cor. NW NW, Section 7-26-1w, in the Hubbard Pool has been abandoned at total depth of 3,682 feet after finding water in the Wilcox sand.

Caddo County

Gorton Trust Co.'s No. 2 Marchand, NW cor. SW NW, Section 2-5-9w, is pumping 15 bbls. from sand at 2,680-89 feet.

Comanche County

Bentley and others' No. 1 Bentley, SW cor. NE NW, Section 29-1-12w, has been abandoned at 2,947 feet.

Grady County

Briscoe & Hall have a rotary rig up for No. 1 Dryden, C NE SE, Section 35-5-8w. Garvin Drilling Co. is building the rig for No. 1 Pursley, SW cor. NE SW, Section 16-4-6w. Sinclair Oil & Gas Co.'s No. 5 Charles, SW cor. SE SE, Section 22-5-8w, is producing 15,000,000 feet of gas from sand at 2,160-2,380 feet. Meridian Gas Co.'s No. 1 Ramsey, C NE NE, Section 10-4-8w, set the 8¼-inch casing at 2,160 feet and drilled to 2,397 feet and is producing 11,000,000 feet of gas. Briscoe & Hall's No. 1 Sledge, SE cor. SW, Section 6-3-5w, has been abandoned at 2,215 feet. Carter Oil Co.'s No. 1 Ray Horton, SW cor. SE NW, Section 8-3-5w, was completed for 85 bbls. in sand at 2,205-2,211 feet. No. 1 Gardenhire, NW cor. Section 16-3-5w, is flowing 15 bbls. from sands at 1,703-30 feet and 1,739-48 feet, the total depth is 1,806 feet. No. 2 V. Miller, SW cor. Section 22-3-5w, had the sand from 1,820 feet to 1,840 feet and is pumping 10 bbls. No. 3 V. Miller, SE cor. SW SW, Section 22-3-5w, has been completed for 35 bbls. on the pump from sands at 1,874-94 and 1,823-32 feet. No. 3 Adair, SW cor. SE NW, Section 27-3-5w, is making 20 bbls. from sands at 1,780-98 and 1,815-21 feet. No. 6 W. E. Polson, SW cor. NE SW, Section 27-3-5w, had sands at 1,678-1,709 and 1,783-86 feet from which the well is flowing 120 bbls. No. 5 W. E. Polson, NW cor. NE SW, Section 27-3-5w, was completed for 90 bbls. from sands at 1,740-65 and 1,805-10 feet. Magnolia Petroleum Co.'s No. 5 Harrison, NE cor. SE NE, Section 28-3-5w, is a 10,000,000-foot gas producer from sand at 1,751-55 feet.

Lincoln County

Magnolia Petroleum Co. has the rig on the ground for No. 1 Telford, NW cor. SE, Section 7-14-4.

Hughes County

Transcontinental Oil Co. and Independent Oil & Gas Co.'s No. 12 Harjo, SW cor. SE SW, Section 26-9-9, in the Papoose area, is a dry hole at 3,772 feet.

Muskogee County

H. E. Williams' No. 7 Manuel, CEL NW NW, Section 17-15-17, is drilling at 150 feet. E. L. Newport and others' No. 1 Roberts, NW cor. Section 16-15-17, is dry and abandoned at 1,440 feet. C. M. Bradley's No. 1 W. Kelly, SW cor. SE,

(Continued on Page 114)

MARION COUNTY DISCOVERY OFFSET IS ESTIMATED AT 150 BARRELS

By J. L. Dwyer
Staff Correspondent, Kansas Fields

A new well, which is a direct offset to the discovery well drilled in northeastern Marion County, Kansas, some time ago by Harwood & Winters, was the best news from the Sunflower fields last week. Phillips Petroleum Co.'s No. 1 Razineck, NW cor. SW Section 22-17-4, found a chat formation which had the pay at 2,392 feet, and the hole has filled up 1,600 feet with oil in three hours. The well is estimated at 150 bbls., and the offset which started the activity is making 20 bbls. in a shallower sand.

In the State Pool, north of the city of Winfield, the Independent Oil & Gas Co. and others' No. 1 State-Cochran, SE cor. NE NW Section 15-32-4, swabbed 400 bbls. from pay sand at 2,890-92, and is expected to do much more than this when fully drilled in.

Marland Oil Co. and others may have opened a new pool in Greenwood County in No. 1 Ladd, NE cor. NW NW Section 35-25-8. Sand was found at 2,444-64 feet, and the well is estimated at 50 bbls.

Butler County

Empire Gas & Fuel Co. made location for No. 82 Enyart, SE cor. NW NW, Section 12-26-4. Payne and others' rig is being built for No. 1 Fisher, NE cor. SW NE, Section 31-26-6. Allison & Fitzwilliams have the rig on the ground for No. 2 McGinnis, NE cor. NW NE, Section 9-27-6. The rig has also been moved out for No. 3 McGinnis, SW cor. NW NE, Section 9-27-6. Patton and others have the rig on the ground for No. 2 Shrivers, SW cor. SE SE, Section 33-27-6. The rig is being built for No. 1 Stern, SE cor. NE NE, Section 33-27-6. Magnolia has the rig at the location for No. 1 Shriver, SW cor. NW NW, Section 34-27-6. Patton and others are building the rig for No. 1 Shriver, NW cor. SW NW, Section 34-27-6. Liggett and others made location for No. 3 Figge, SE cor. NW, Section 36-27-6. National Refining Co.'s No. 5 Molter, NW cor. SW NE, Section 26-28-5 is drilling at 2,700 feet. Magnolia Petroleum Co. has the rig on the ground for No. 5 Blakeman, NE cor., Section 4-28-6.

Robers and others' No. 13 Drum Bitler, NE cor. SW NW, Section 29-26-8 had sand 2,668-2,704 feet, shot 90 quarts and produced 90 bbls. No. 2 Drum Bitler "B," SW cor. NW NE, Section 31-26-8 was shot with 160 quarts and is dry in sand 2,721-50 feet. Magnolia Petroleum Co.'s No. 4 Blakeman, SE cor. NE NE, Section 4-28-6 produced 220 bbls. from sand 3,067-81 feet. Abel, Finney and others' No. 1 Morti, SW cor. NW NE, Section 18-28-7 is dry at 2,777 feet. Roth & Co.'s No. 11 Hanna, NE cor. SW SE, Section 33-29-8 was shot with 120 quarts in sand 2,098-2,118 feet and made a 15-bbl. well.

Chase County

Neibert and others' No. 3 Lipps, C NW SW, Section 29-18-7 was completed for 1,500,000 feet of gas in sand 1,132-38 feet. Preston & Pasewalk's No. 4 Lipps, C NW SE, Section 30-18-7 is dry and abandoned at 1,259 feet. Empire Gas & Fuel Co.'s No. 8 Lipps, C NW NW, Section 32-18-7 is producing 2,000,000 feet of gas from sand 1,103-09 feet.

Clark County

Walker & Walner made location for No. 1 Blank, SW cor. NE, Section 16-31-23w.

Cowley County

J. A. Hull Co.'s No. 4 School land, NE cor. NW SE, Section 15-32-4 drilled to

(Continued on Page 161)

SOUTHEASTERN OHIO PRODUCERS FEATURE OF EASTERN FIELDS

By D. S. Wakenight.
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Mar. 28.—The Niagara Lime formation is now furnishing the best producers in southeastern Ohio. In the completion of large wells Jackson township is leading all other townships.

In the southwest quarter of Section 6, Jackson Township, Guernsey County, the Ohio Fuel Supply Co. has completed in the Niagara Lime No. 4 on the L. J. Fulton farm. The well produced 160 bbls. the first 24 hours. On the same farm and in the same section and township, the same company completed in the same formation No. 3 on the same farm. It produced 120 bbls. the first 24 hours.

In Section 2, Fallsbury Township, Licking County, Shaffer & Co. completed in the Berea grit No. 9 on the James Chaney farm. It produced 20 bbls. the first 24 hours after shot in the Berea grit. In Section 19, same township, Wiggins & Co.'s test on the N. McKee farm is a very light pumper in the same formation.

In Section 31, Deerfield Township, Morgan County, Ralston & Maynard's No. 7 on the Thomas O'Connor farm is a 5-bbl. pumper in the Berea grit. In Sec. 11, Benton Township, Monroe County, John Langsdorf and others completed a test on the John Langsdorf farm. It is a light gasser and a small pumper in the salt sand. In Section 33, Pleasant Township, Perry County, the Allegheny Oil Co.'s No. 17 on the Elizabeth Barrisford farm is a duster and abandoned. In the southern part of Lot 288, Sutton Township, Meigs County, the Pure Oil Co. has started to drill No. 3 on the Hannah Capehart farm.

Good Well in Hocking

In the northwest quarter of Section 13, Washington Township, Hocking County, the Gordon Oil Co. completed and shot in the Clinton sand No. 4 on the Frederick Thrush farm. It produced 103 bbls. the first 24 hours. The location is 700 feet north of No. 2 on the same farm. In the northwest quarter of Section 27, Falls Gore Township, the Sure Shot Oil & Gas Co.'s test on the U. C. Dicken farm is a duster. A little gas was developed in this formation, but the well will be abandoned.

In Section 2, Independence Township, Washington County, Thomas E. Keating has a light pumper in the Maxon sand at his No. 6 on the G. A. Allison farm. In Section 1, Monroe Township, Coshocton County, the Empire Gas & Fuel Co.'s second test on the Robert L. McKelvey farm is a duster in the Clinton sand.

In Section 11, Hanover Township, Licking County, the Edward H. Everett Co. drilled through and shot in the Clinton a second test on the Frank L. McKee. It placed 105 bbls. to its credit the first 24 hours.

In Section 5, Killbuck Township, Holmes County, the Kemrow Co. completed and shot in the Clinton a test on the L. B. Mohler. It produced 55 bbls. the first 24 hours.

In the southeast quarter of Section 24, Green Township, Hocking County, the Griffin Producing Co. completed No. 3 T. J. Mowery. It is good for 25 bbls.

In the northeast quarter of Section 29,

(Continued on Page 162)

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Two Tests Are Being Watched Closely

Carterville Area and Pleasant Hill District in Louisiana Scene of Important Drilling Operations

By Neil Williams
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Mar. 28—Interest in North Louisiana and Arkansas oil fields the past week was chiefly a matter of "watchful waiting" on the outcome of tests in two promising wildcat areas which were in the limelight a week ago. As for any important and definite developments, fields of this district were almost featureless.

Tests which have been expected to prove important factors in determining the oil possibilities of the Carterville area of northern Bossier Parish and also of the Pleasant Hill district of northern Sabine Parish still were not recognized "officially" and generally as producers.

However, in the Carterville area, Woodley & Collins and Atlantic Oil Producing Co.'s No. 2 L. & A., Section 14-23-12, was flowing by heads at frequent intervals following the setting of 2½-inch tubing last Thursday. It was estimated to be making around 200 bbls. of fluid, a fair part of which was oil.

Operators Interested

This test aroused the hopes of Carterville operators a week ago, when it was bailed in making an estimated 5,000,000 feet of gas and spraying oil from the Woodbine sand at 3,076-81 feet. After being allowed to blow for several hours, it settled down and then stopped producing either gas or oil. This was attributed to the fact that the gas pressure was not sufficient to lift the oil through the 8¼-inch casing so preparations were made immediately to set the 2½-inch tubing. The hole stood most of the week with 400 feet of salt water and 2,300 feet of oil, making a head about every eight hours. The tubing was set with the packer at 3,000 feet.

There is considerable speculation as to just what this test means for the district. Theories have been advanced that this is an edge well and that a main pool is yet to be uncovered somewhere in that vicinity, presumably toward the northwest. Previous wells which have been completed there, one being the No. 1 Roberson, Section 22, making 40,000,000 feet, and the other, Bahan and Amerada Petroleum Corp.'s No. 1 Mays, Section 27-23-12, making 35,000,000 feet of gas, were to the southwest.

May Stimulate Drilling

The finding of oil in the No. 2 L. and A. no doubt will stimulate some further drilling in that area at this time despite the low crude prices. This is evidenced by the fact that W. R. Ramsey of Oklahoma City, Okla., is making location for five tests, two of which will be offsets to No. 1 Roberson, two to No. 1 Mays and the fifth to Bethany Oil & Gas Co.'s No. 1 Dodson, Section 16-23-12.

The possibilities of the Pleasant Hill district of northern Sabine Parish still hung fire during the week, due to delays in bringing in the Arkansas Fuel Oil Corp.'s No. 3 Logan, Section 33-10-12. Efforts have been centered in killing the gas which has been leaking from behind the casing. The 6⅝-inch pipe has been cemented at 3,105 feet, and as soon as the gas leak is killed the test will be bailed in.

Considerable attention has been focused on this test, as it is an offset to the same company's No. 1 Logan, which was completed as a producer. The discovery well, however, has shown a steady decline in production since bailed in. The Arkansas Fuel Oil Corp. also has two other tests which have reached the same horizon. They are the No. 4 Logan, same section, and No. 5 Logan, Section 28-10-12. The 6⅝-inch casing is being set in the latter test at 3,108 feet.

Rayville District

In North Louisiana's third active wildcat territory, the Rayville district of Richland Parish, in the northeastern part of the State, Gulf Refining Co. has succeeded in killing the blowout in No. 1 Marshfield, Section 30-17-6e, and completing the well as a 16,500,000-foot gasser. All three wells so far completed in this district have been gassers with the latter as the largest. No. 1 Marshfield was completed at a depth of 2,397 feet.

In the same territory, the Ruston Drilling Co.'s No. 1 O'Neil, Section 35, will be completed as a 3,840,000-foot gasser. The total depth of the hole is 2,508 feet. The well originally was bailed in at 2,443 feet making about 3,800,000 feet of gas. This gas was killed and the hole drilled deeper. When the liner was set and the well bailed back in it made about the same amount of gas as it did at 2,417 feet.

Some interest was centered toward the last of the week in Clark and Melat and associates' No. 1 Payne, Section 12-11-6, DeSoto Parish, near Logansport, which started flowing about 500 bbls. of fluid, of which about 75 bbls. was 33.1 gravity oil. Originally drilled in 1922 by the DeSoto Oil & Gas Co., this well was completed flowing salt water with about 7 or 8 bbls. of oil and an estimated 500,000 feet of gas. Six months ago the well was started pumping, making salt water and about 10 to 12 bbls. oil daily and then it began flowing salt water and 6 bbls. of oil. It flowed for a month, bridged and was shut in three days. Then, when the liner was pulled and the bridge knocked out it started flowing over the 60-foot derrick salt water, oil and gas.

Important Wildcat

One of the most important wildcat completions was in the Lawson-Urbana district of Union County, Arkansas, in the Marine Oil Co.'s No. 1-B, Section 10-18-13. This well is making an estimated 60,000,000 feet of gas from broken sands at 2,695-2,707 feet. The other wells in the immediate vicinity are in prospect for the next two weeks in the same company's No. 1-B Winn, in which the 8¼-inch casing has been cemented at 2,664 feet, and the No. 2-A Thompson, which is drilling past 2,100 feet.

Another gasser and two pumping oil wells were included in Union County's completions of the week but these were in the Norphlet area of Smackover. Keen & Woolf's No. 4 Murphy, Section 9-16-15, is a 3,000,000-foot gasser spraying b.s. from sand at 2,640-50 feet; Imperial Oil & Gas Co.'s No. 4 Murphy, same section, is pumping 75 bbls. of oil at 2,762-78 feet, and Peer Oil Corp.'s No. 7-B Palmer, also same section, is pumping 400 bbls., of which about 75 per cent is salt water. Sand is at 2,418-26 feet.

A semiwildcat area of Red River Parish got a 50-bbl. pumping oil well in The Texas Company's No. B-35 Brinkerhoff, Section 30-13-10, which was completed at 2,528 feet.

The New Texas Well

A new angle perhaps was thrown in north Louisiana's oil possibilities by the bringing in of Humble Oil & Refining Co.'s No. 1 Elliott and Clark, in Cherokee County of east Texas. This well is outside of what is generally termed as the north Louisiana-Arkansas and east Texas district, and has no direct bearing on fields here, yet the fact that it is on an inland salt dome has made it extremely interesting to north Louisiana and Arkansas operators.

That this well may turn the attention of north Louisiana to salt domes of their own State is a very likely supposition. In this State there are numerous salt domes, which generally have been condemned, as all other inland salt domes, by geologists. Just why inland salt domes have been avoided as possible oil fields while Gulf Coast salt domes have been extremely productive, apparently is unexplainable. There is no doubt that now there may be some trend to try to drill the Louisiana inland salt domes.

Only one field, the Urania district of LaSalle Parish, has been drilled in this State on a salt dome and this field is on the edge. This oil, however, generally has to be treated and is considered of lesser quality.

Of course there is not likely to be any important drilling or leasing campaign in any section of the Arkansas-North Louisiana division for the time being or until the crude market situation improves. Present low prices of oil are beginning to have a very noticeable effect on field operations and the trend now seems to be to close down wherever possible.

Part of the slackening of operations in some fields has been due to flood conditions and high water. The Urania Field has been one of the most affected districts with most of this area under water. It also is reported that considerable oil in storage there was lost when streams flooded the storage reservoirs although when the waters began to rise most operators started pumping their oil out of the danger zone.

The decreased operations and high water, however, were not reflected in Urania's production figures which showed an increase of 1,315 bbls. in average daily output during the week.

Production at Standstill

Total production of the North Louisiana-Arkansas division was about stationary, an increase of only 455 bbls. being shown in the daily average last week

EASTERN EDDY COUNTY COMPLETION OF PRAIRIE ESTIMATED AT 75 BBLS.

By Special Correspondent

ARTESIA, N. Mex., Mar. 26.—The Prairie Oil & Gas Co. has completed its initial producer in eastern Eddy County, New Mexico. This is the No. 1 Keel permit well in the SE SE, Section 10-17-31, which appears good for 75 bbls. following a shot from 3,377 to 3,412 feet. After cleaning itself, the well flowed for four minutes over the crown block. The hole filled approximately 400 feet in oil in 20 minutes after flowing. This was the second shot, the first being run in the gas sand from 3,482 to 3,491 feet. This shot failed to come out of the hole, having bridged, but the gas pressure was materially increased. Tubing will be set and it is expected the well will produce steadily.

On the cap rock, the Ingelfield, Bridges No. 1 State in Section 4-17-34 is still the center of attraction, having 3,500 feet of oil standing in the 8¼-inch hole. The bottom of the well is 4,735 feet, according to a late report, it being the intention to swab in and endeavor to find out how fast the fluid is entering the hole. A lost bailer may delay this operation, however. The control head has been installed and flow lines laid to a 1,000 bbl. tank erected several days ago. A second tank, of like capacity, has also been erected on the lease.

The Maljamar Oil & Gas Corp. is running 6⅝-inch casing in its No. 1 Grace Mitchell in Section 5-17-32 and the well will be on production within a few days.

The Cap Rock Oil & Gas Corp. is running tour on its No. 1 State well in Section 11-16-32, the bottom of the hole being 980 feet. It is this company's intention to underream the 10-inch carrying it to the top of the salt, looked for at 1,000 feet.

The Ohio Oil Co. has shut down its No. 1 William Mitchell in Section 18-17-32 at a depth of 4,295 feet. At this point a string of 4½-inch pipe will be set.

There is little change in the formations encountered in the Mid-Continent Oil Co.'s No. 1 Woolley, Jones in Section 21-17-30. A slight show of oil was picked at 3,266 feet, with the bottom of the hole now 3,340 feet.

West of Artesia

On the west side of the Artesia Field, the Empire Gas & Fuel Co. has another good shallow producer, No. 3-A State in Section 2-18-27, this production coming from a sand encountered from 1,605 to 1,618 feet. It is drilling in another well on the Russell permit in Section 34-17-27.

South of the field, the Marland Oil Co. is having considerable trouble due to a number of water sands encountered in its No. 1 Hale in Section 11-20-30, the bottom of the hole being 420 feet. The Ohio Oil Co. has cemented a string of 10 inch casing in its No. 1 Record in the SW SW, Section 13-22-29 and is down 2,082 feet.

Two more California operators have entered this field, George F. Getty, Inc., of Los Angeles, which has obtained a block of 16,000 acres, and the Superior Oil Co. which also has a large block. Both companies have done considerable geological work and have contracted for a well, operations to start shortly.

Efforts of some permittees and operating companies to make short cuts around the Government's regulations, or to evade them are apparently going to meet with little success as a complete check-up is being made of this area by a representative of the United States Geological Survey.

Two wells drilled in the Maljamar area have been checked on several occasions and the companies notified that the necessary action must be taken immediately. One of these wells, which has been shut in for several months, has been losing considerable gas. Another well, on which the bond it is reported was forfeited at midnight March 23, has been standing almost full of water, this being in an open hole.

According to the department's ruling, there is no such thing as a "validation hole," only as it applies to Article 3. It, therefore, has been a waste of money and time by a number of permittees, or operating companies, it is believed, who have drilled a 6-inch hole to 500 feet. A hole of this size is insufficient to carry down to test the known producing horizons, therefore, does not comply with the Government's regulations. All such validation holes, it is understood, will be measured. One validation hole, drilled by an operator, and on which an affidavit was made stating it had been carried to 500 feet, on measurement it was said was

(Continued on Page 157)

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as compared with the previous week. Production by fields was:

Louisiana	
Caddo, light	10,110
Caddo, heavy	4,490
Homer	5,300
Haynesville	7,900
DeSoto and Red River	4,300
Elm Grove	665
Bellevue	1,625
Cotton Valley	6,100
Urania	10,610
Total	51,100
Arkansas	
El Dorado	6,210
Lisbon	4,535
Smackover, light	11,720
Smackover, heavy	98,230
Stephens	1,360
Nevada	1,750
Bradley	200
Total	124,005
Total both states	175,105
Total last week	174,650
Gain	455

Bossier Parish

In the Elm Grove district, the Gulf Refining Co. is drilling deeper in its No. 6 Hodges, Section 24-16-12, and now is at 1,810 feet. The well was bailed for a test a week ago at 1,561 feet but failed to prove satisfactory at that level. Another drilling test in that area is the Palmer Corp.'s No. 3 Bossier L. and L. Co., Section 9-16-11, which is fishing for a drill stem at 3,832 feet. The Texas Company's No. 14 Caplis, Section 14-16-12, is drilling chalk rock at 1,527 feet.

In Bellevue, the Humble Oil & Refining Co. has a rig up for No. 30 Bliss & Wetherbee, Section 15-19-11.

Caddo Parish

There were 10 completions in Caddo Parish during the week but only three of these made producers. These were the Gulf Refining Co.'s Nos. 264 and 265 Ferry Lake, the former in Section 22-20-16 and the latter in Section 28, and the Dixie Oil Co.'s No. 85 Robertshaw, Section 14-21-15. Gulf's No. 264 is pumping 17 bbls. at 2,330 feet; No. 265 is pumping 18 bbls. at 2,263 feet, while the Dixie's No. 85 Robertshaw is pumping 40 bbls. at 1,682 feet.

J. H. Brogden and others' No. 1 McMillan, Section 11-16-14, has been abandoned as dry at 628 feet. The Gulf Refining Co. has moved the rig and abandoned No. 3 Wemple, Section 14-20-15, with the hole at 2,265 feet. Victor Wenzell's No. 3 Thomas in Section 15, about three-quarters of a mile northwest of the Gulf's No. 3 Wemple, after having been rigged up, has been abandoned. The same operator also has abandoned the derrick for his No. 4 Thomas, same section, while The Texas Company has junked and abandoned No. 2 Glassell, Section 14. In Section 24-22-15, because of salt water in his No. 1 Fields at 1,070 feet, H. H. Morris has abandoned this test and also the location for No. 2 Fields

In the Waskom area of Caddo Parish, Bahan and Bahan have completed a derrick for No. 1 Wilburn, Section 4-17-16, and have a rig up for No. 2 Wilburn. The Standard Oil Co.'s No. 1 Trosper, Section 34-18-16, is drilling in rock at 2,630 feet.

L. A. Berston is drilling at 750 feet in No. 6 Murff, Section 12-21-16. The Empire Gas and Fuel Co. has cemented the 15½-inch casing at 20 feet in No. 1-B Levee, Section 31, and in Section 15, Galloway and others are drilling at 1,250 feet with 10-inch casing cemented at 60 feet. The Standard Oil Co. is waiting for a standard rig for No. 117 Stiles in Section 33. This test is at 1,833 feet. Bethany Oil & Gas Co.'s No. 1 Offenhauser, Section 1-20-16, is drilling at 2,100 feet. The Big Lake Oil Co.'s No. 1 Rodessa, Section 23-23-16, is at 2,820 feet. Burford and others' No. 1 Dambley, Section 2-20-16, is shut down waiting on orders at 1,648 feet. J. E. Burton is drilling at 980 feet in his No. 15 Banker, Section 18-21-15.

Dixie is Core Drilling

In Section 13, the Dixie Oil Co. is core drilling at 3,728 feet in No. 81 Robertshaw. It had a showing of gas at 3,727 feet. The same company has a rig up for No. 86 Robertshaw, same section. No. 10 Slattery, in Section 27, is coring at 3,816 feet. The Double I Oil Co. in Section 15, is drilling No. 9 Spell at 1,450 feet. It has 10-inch casing cemented at 42 feet and the 6-inch at its present depth. The same company has a derrick up for No. 10 Spell in the same section. The Gulf Refining Co. also has a derrick up for No. 13 Tyson in Section 14. Magnolia Petroleum Co.'s No. 16 Dillon in Section 14 is being bailed at 1,750 feet. This company has a rig up for No. 20 Dillon in Section 23, and is drilling lime at 2,719 feet in No. 20 Robertshaw, same section. The Shreveport Oil Corp.'s No. 2 State, Section 27, is shut down waiting orders at 510 feet. The Texas Company is drilling rock at 3,626 feet in No. 47 C. M. L. Co., Section 23, and in Section 14 has cemented the 8⅝-inch casing at 3,540 feet in No. 5 Hernson. No. 5 Hicks and Payne, Section 21, is being drilled in lime at 3,120 feet.

W. W. Dobson has cemented 6-inch casing at 1,826 feet in No. 4 Rives, Section 5-20-16. J. F. Files' No. 1 Payne, Section 35-23-16, is shut down at 925 waiting fuel. Gilliam Syndicate has cemented 6-inch casing at 220 feet in No. 1 Taylor, Section 17-21-14. A. C. Glassell has a rig up for No. 1 Thigpen & Herold, Section 26-18-16. Gulf Refining Co. is drilling sand rock at 1,836 feet in No. 266 Ferry Lake, Section 28-20-16, and is drilling at 1,570 feet in No. 267 Ferry Lake, same section. In the latter test, 10-inch casing has been cemented at 1,570 feet. H. M. Hancock's 1 Hampton, Section 8-19-16, is drilling at 1,200 feet. Lewis Oil Corp. is bailing No. 9 C. M. L. Co., Section 24-22-15, at 1,070 feet to make a test. Magnolia Petroleum Co. has cemented 4½-inch casing at 2,910 feet in No. 2 Caddo, Section 8-20-15. The same company is waiting for a standard rig at 1,620 feet for No. 17 Doan-Thigpen, Section 6-20-15, and is drilling shale at 2,165 feet in No. 4 Planters, Section 7-21-14. In Section 10-20-15, M. I. Morgan is drilling at 1,200 feet in No. 8 Glassell. Ohio Oil Co. has a rig up for No. 1 Moodie Fortner, Section 5-22-16. Standish Oil & Refining Co. has a rig up for No. 11 Allen, Section 23-22-15. The Texas Company has cemented 6-inch casing at 2,200 feet in No. 6 Curtis, Section 14-20-16. The same company's No. 56 Harrell, Section 4-21-16, is pumping salt water at 2,408 feet.

Monroe District

Among completions in the Monroe district during the week was the National Gas Products Co.'s No. 1 Burton, Section 26-20-4e, Ouachita Parish, which blew in for an estimated 25,000,000 feet of gas at 2,171 feet. The Southern Carbon Co. also got a 10,000,000-foot gaser at 2,176 feet in No. 3 Ladell, Section 2-19-4e, Ouachita Parish.

In Union Parish, the National Gas Products completed a 16,000,000-foot gasser at 2,140 feet in its No. 1 Trimble, Section 7-20-4e. It had 960 pounds rock pressure.

In Morehouse Parish, the Consolidated Carbon Co. lost the hole in No. 1 White, Section 16-20-4e, and has skidded the rig 50 feet north and is drilling at 710 feet. The Louisiana Development Co.'s No. 38 fee, Section 21-20-5e, is drilling at 300 feet after having drilled out the 12-inch plug at 185 feet. The Ouachita Natural Gas Co. is drilling at 2,206 feet in No. 8 Allison, Section 7-20-5e. The Standard Oil Co. has abandoned No. 4 Interstate, Section 27-20-6e, with the total depth at 1,730 feet. United Carbon Co. is drilling at 868 feet in No. 1 Townsend, Section 29-21-5e. It has 8-inch casing cemented at this depth and the 12-inch pipe at 182 feet. The same company has a derrick for No. 1 Atkins, Section 26-20-5e.

In Ouachita Parish of the Monroe district, Easterling and others have cemented the 6-inch casing at 2,200 feet in No. 1 Sicard, Section 18-18-4e. Jordan Drilling Co. is drilling at 1,100 feet in No. 1 Moore, same section. The 8-inch pipe was cemented at 902 feet. In Section 1-19-4e, Ladell Properties, Inc., has a rig up for No. 39 Fee, and in Section 20-20-5e, the Louisiana Gas Products Co. has a derrick for No. 5 Dewdrop. United Carbon Co. has shut down No. 1 Raburn, Section 28-21-4e, Union Parish. It is at 2,110 feet.

Webster Parish

Magnolia Petroleum Co. has a derrick up for No. 3 Cox, Section 23-21-10, Cotton Valley district. In the same section, the same company's No. 2 Robins has cemented 6⅝-inch casing at 2,536 feet. The Louisiana Oil Refining Corp.'s No. 1 Davis, same section, is drilling lime at 4,170 feet. In Section 22, the Northwest Louisiana Gas Co. is drilling gumbo at 2,705 feet, and the Woodley Petroleum Co.'s No. 1 Cox is drilling lime at 4,250 feet.

ARKANSAS

Union County

Seven tests were completed in proved areas of Union County during the week, two making pumping oil wells, one a gasser, and the remainder were abandoned. The Peer Oil Corp.'s No. B-7 Palmer, Section 9-16-15, Smackover, is pumping 400 bbls. of which 75 per cent is salt water. This is at a depth of 2,418-26 feet. The Imperial Oil & Gas Co.'s No. 4 Murphy is pumping 75 bbls. in sand at 2,762-78 feet. Keen & Woolf's No. 4 Murphy, also same section, is a 3,000,000-foot (estimated) gasser in sand at 2,640-50 feet. It is spraying b.s. The following have been abandoned: Crestline Oil Co.'s No. 1 Telford, Section 34-17-15, casing in the hole, depth 2,246 feet; Hatfield and others' No. 3 Ennis, Section 23-17-16, casing pulled, depth 2,712 feet; Magnolia Petroleum Co.'s No. 1 Childs, Section 8-16-16, casing pulled and hole plugged, salt water was struck at 2,743 feet; the same company's No. 6 Childs, same section, casing pulled, 3,000 feet.

W. H. Gilliland's B-1 Hodges, Section 1-16-17, is drilling at 2,435 feet, and in Section 9-16-15, the Gulf Refining Co. is drilling No. 23 T. C. Murphy at 1,990 feet. In the same section, Hollifield and others are preparing to drill their former No. 2 Murphy deeper. Also in the same section, Humble Oil and Refining Co. has cemented 4½-inch casing at 2,750 feet in No. 2-B Flenniken. The same company has 300 feet of fluid in the hole in No. 6 Goodwin, Section 20-17-16, but is shut down waiting for a standard rig. The sand is at 2,189-2,200 feet.

To Drill Deeper

The Imperial Oil & Gas Co. is fishing for 39 joints of 2½-inch tubing at 2,565 feet in No. 5 Murphy, Section 9-16-15. No. 7 Murphy, same section, is to be drilled deeper. The latter was completed in 1925 as a 1,000-bbl. flowing well. Louisiana Oil Refining Corp.'s No. 3-B Murphy, same section, has 4½-inch casing cemented at 2,715 feet. In Section 10, Lion Oil & Refining Co.'s No. 9-A Flenniken is waiting on a standard rig with 1,000 feet of oil in the hole at 2,391-96 feet. The same company's No. 6 Graves, in Section 3, is waiting on a standard rig at 1,958-66 feet, and the No. 2 Hardy-Murphy, Section 9, is waiting for a standard rig at 2,307-18 feet. It whipstocked at 2,305 feet, the total depth of the hole being 2,409 feet. No. 6 Hardy-Murphy, same section, is at 2,702 feet and drilling deeper with standard tools. The same company's No. 7-D Murphy, Section 8, has been cemented back to 2,769 feet. It cored 6 feet in red gumbo to 2,806 feet.

Magnolia Petroleum Co. has a derrick for No. 2 Crawford, Section 8-16-16, the Louann area of Smackover. This formerly was the No. 1 Crawford drilled by the Southern Oil Co. as No. 1 Pumph. A derrick also is up for No. 3 Crawford, same section, while in Section 7, the same company has a rig up for No. 3 Freeman. Magnolia has set 13⅜-inch casing at 302 feet in No. 9 Murphy, Section 8-16-15, Norphlet area, and has cemented the 6⅝-inch casing at 2,153 feet in No. 4 Saxon, Section 5-16-16. In Section 17-16-15, it has set the 13⅜-inch casing at 300 feet in No. 6 Wilson.

Mounts and others are drilling at 487 feet in No. 6 Pratt, Section 8-18-15, El Dorado Field. National Consolidated Petroleum Co., in Section 8-16-16, is drilling No. 2 Fagg at 2,550 feet. National Gas & Fuel Corp.'s No. 4 Flenniken, Section 8-16-15, is being core drilled at 2,637 feet. The same company's No. E-1 Murphy, Section 9, is waiting on a standard rig with 900 feet of oil in the hole, sand

(Continued on Page 163)

LAWSON-URBANA DISTRICT FIGURES IN ARKANSAS WILDCAT OPERATIONS

By Neil Williams

Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Mar. 28.—The Lawson-Urbana district of Union County, Ark., figured most noticeably of wildcat areas of this division when the Marine Oil Co. completed No. B-1 Thompson, Section 10-18-13, as a 60,000,000-foot gasser. This was one of the largest gas wells brought in in some time. Production is from broken sands at 2,695-2,707 feet.

The Rayville district of Richland Parish, northeastern Louisiana, also added another gas well in the completion of the Gulf Refining Co.'s No. 1 Marshfield, Section 30-17-6e, as a 12,500,000-foot well.

Other wildcat territory, including Carterville, northern Bossier Parish, and Pleasant Hill, northern Sabine Parish, was more or less featureless. Both of these areas are being watched closely pending the outcome of important tests there.

A little note also was given the semi-wildcat area in Red River Parish when The Texas Company completed No. B-35 Brinkerhoff, Section 30-13-10, pumping 50 bbls. daily from sand at 2,528 feet.

Dixie Oil Co.'s No. 1 Jenkins, Section 9-2-11, De Soto Parish, is fishing for cable tools which stuck when the well blew out from the Trinity horizon at 5,290 feet.

There were eight completions in wildcat or semiwildcat territory, not including the Gulf Refining Co.'s No. 1 Marshfield, Section 30-17-6e. Of the completions, one was a gas well, one a pumping oil well, while six wells were abandoned.

Bienville Parish

B. P. Borden has a rig up for No. 1 L. & A., Section 9-15-7. Kimbrough and associates still are shut down in No. 1 Cargle, Section 27-18-8.

Bossier Parish

Anderson & West abandoned No. 1 Bulkley, Section 9-20-13, north of Benton. Total depth was 2,040 feet. Bethany Oil & Gas Co. is setting 6-inch casing at 3,078 feet in No. 1 Dodson, Section 16-23-12. In Section 32-23-13, Clark & Norton are repairing the rig at No. 1 Ford. Doern and associates are cementing 8-inch casing at 2,670 feet in No. 1 Thomas, Section 10-22-11. John Glassell, Jr., and associates have a rig up for No. 1 Gibson-Tiger, Section 14-21-14. Harrell Drilling Co. is core drilling the top of the Nacatoch sand at 1,115 feet in No. 1 Atkinson, Section 2-18-12. Louisiana Oil Refining Corp. is drilling sandy shale in No. 1 Blanton, Section 23-23-12, at 2,728 feet. It cored an oil sand at 2,695 feet. Magnolia Petroleum Co.'s No. 1 Dodson, Section 15, is drilling lime at 1,776 feet. In Section 5-18-11, Simms Oil Co.'s No. 2 C. D. Sandlidge is drilling at 850 feet. It drilled out the 10-inch plug at 65 feet. Triangle Drilling Co. and W. D. Perritt drilled out the 12½-inch plug at 118 feet and are at 600 feet in No. 1 Levy, Section 13-20-14. Tubbs and associates are drilling in chalk rock at 1,650 feet in No. 1 Jacobs, Section 26-20-13. Woodley & Collins and Atlantic Oil Producing Co., in No. 2 L. & A., Section 14-23-12, Carterville area of northern Bossier Parish, have 400 feet of salt water and 2,300 feet of oil in the hole at a total depth of 3,081 feet.

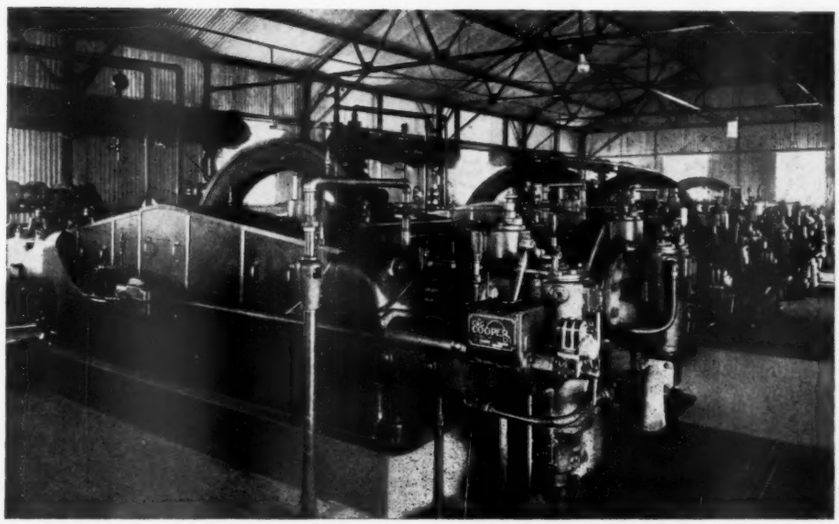
Caldwell Parish

One Caldwell Parish wildcat, E. V. Wenzell's No. 1 Shaw, Section 22-14-2e, was abandoned during the week and the rig moved. The hole was at a depth of 1,630 feet. Humble Oil & Refining Co.'s No. 4-A Louisiana Central, Section 12-11-2e, is drilling at 410 feet. Southern Crude Oil Purchasing Co. has a rig up for No. 8 Caldwell Lumber & Timber Co., Section 5-13-5e.

Claiborne Parish

Brown and associates' No. 1 Beard, Section 28-19-5, southern Claiborne Parish, was abandoned as dry at 2,500 feet. Magnolia Petroleum Co.'s No. 1 Lee,

(Continued on Page 114)



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Coastal Wells Counterbalance Decline

New Production at Spindletop, Pierce Junction and Big Creek Shows Substantial Increase for Week

By P. L. McGreal
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Mar. 28. — Good wells in the Spindletop, Pierce Junction and Big Creek Pools toward the end of the week more than counterbalanced declines in other pools in the Gulf Coast division. As a result the estimated daily average gross production shows an increase of 74 bbls. for the week of March 26. The gross for the week is placed at 153,837 bbls.

The new production developed during the week shows a substantial increase over last week. Wells completed total 20, an increase of 1. The new production aggregates 13,636 bbls. against 4,098 bbls. the previous week. The record shows one dry hole and five salt water wells. Eleven tests are bailing.

As has been remarked many times in previous reviews, the Gulf Coast division is the most erratic of all the producing sections in the country. One week will have flowing wells putting out from 1,000 to 5,000 bbls. and the next week nothing but pumpers or salt water wells will be recorded. As a consequence, one week the gross production will increase anywhere from 1,000 to 5,000 bbls. and the following seven-day period show an equally large decrease in the daily average output, or as is the case this week, with practically no change in the totals.

The drilling report reflects a gradual decline in new work in the pools, due to the slump in prices. A close compilation of crude stocks shows approximately 14,355,457 bbls. in storage March 1, which is 1,408,919 bbls. in excess of the amount held one year ago. Of the total some 5,615,250 bbls. are in earthen tanks and this will probably show a loss of 20 per cent, due to water, basic sediment and evaporation. Much of the crude in earthen reservoirs has been held there for several years with a consequent heavy deterioration in value. Practically all of it will have to be treated before it becomes "pipe line oil" and this involves another percentage of loss. So that, as far as stocks are concerned, the accumulations in the Gulf Coast region cannot be said to constitute much of a menace to the market for crudes. Any cutting of Gulf Coast prices is in sympathy with the depression in the lighter gravity crudes.

Previous to the installation of the cracking process coastal crudes went largely into the making of lubricating oils and fuel oil. The light grades were topped for gas oil and then turned into the fuel oil market. Now, however, it is all run through the high pressure stills and the gasoline content secured. It is small compared with the other crudes, but all helps to increase the gross output of motor oils.

Wells Completed or Bailing

On Friday, the Gulf Production Co.'s No. 2 Jones fee, at Pierce Junction, was completed at 3,500 feet, flowing 1,500 bbls. initially. It is in the new deep sand area on the northwest flank of the dome. Smith and others' No. 1 Parsons is heading 100 bbls. at 4,250 feet. The Rio Bravo Oil Co.'s No. 3 P.F. is bailing at 4,260 feet, as is M. Kouri's No. 2 Jones at 2,850 feet.

Another late-in-the-week completion is the Gulf Production Co.'s No. 38 F. Davis in the Big Creek Pool in Fort Bend County, flowing 3,800 bbls. initially at 3,800 feet. Same company's No. 39 Davis is a 20-bbl. well at 2,950 feet. No. 38 came in Thursday.

The estimated daily average for each pool is as follows:

Pool—	Daily Av.
Boling	1,665
Batson	1,450
Blue Ridge	3,060
Big Creek	5,290
Barber Hill	1,760
Dayton	50
Damon Mound	955
Edgerly (La.)	870
Goose Creek	7,775
Humble	3,980
Hull	16,110
High Island	570
Jennings (La.)	1,060
Lockport (La.)	6,350
Markham	770
Nash	820
Orange	5,100
Orchard	40
Pierce Junction	9,450
Piedras Pintas	150
Spindletop	57,000
Saratoga	1,275
Sour Lake	5,200
South Liberty-South Dayton	3,910
Stark (La.)	2,200
Vinton (La.)	5,260
Welsh-Anse La Bute (La.)	62
West Columbia	10,180
*Miscellaneous	1,595
Total	153,837

*Includes Nacogdoches, Washington, Kleberg Counties, Texas, and Cameron, Calcasieu and Iberia Parishes, Louisiana.

The South Louisiana Pools contributed 15,680 bbls. of the gross for the week.

Southwest Fields

Luling	18,200
Mirando	14,250
Somerset	1,185
Callihan	40
Rockdale-Minerva	960
Lockhart (Lytton Springs)	2,285
Total	37,220
Grand total for week	191,057
Grand total last week	190,983
Gross increase	74

Blue Ridge Producer

Other completions during the week include the Gulf Production Co.'s No. 9 West-Schenck, on the south flank of the Blue Ridge Dome, flowing 400 bbls. at 3,200 feet.

In the Hull Pool, the Humble Oil & Refining Co.'s No. 1 Merchant is a salt-water well at 4,100 feet and is deepening. The Hull Oil Co. got the same in No. 2 Harrison at 3,150 feet, as did the Cannon and Davis No. 1 Crosbie at 1,100 feet. The Gulf Production Co.'s No. 19 Baldin is bailing at 3,100 feet.

The Texas Company's No. 4 Simms, at South Liberty, is bailing at 3,580 feet.

In the Goose Creek Pool, the Gulf Coast Oil Corp.'s No. 23 Galliard is pumping 35 bbls. at 2,760 feet.

In the Orange Pool, the Humble Oil & Refining Co.'s No. 6 Winifree is pumping 120 bbls. at 4,000 feet. The Rycade Petroleum Corp.'s No. 2-B Cow Bayou is bailing at 3,900 feet, as is the Rex Petroleum Co.'s No. 13 Carbello at 3,175 feet.

The Sun Oil Co. got salt water in No. 4 Bender, on the west side of the Humble Pool, around 2,900 feet.

In the Batson Pool, the Deutser Oil Co.'s No. 1 Colorado is a salt water well at 1,050 feet and will be deepened. The Paraffine Oil Co.'s No. 34 Heywood is good for 15 bbls. at 1,075 feet. S. R. Buchanan is bailing No. 92 Milhome at 1,360 feet.

The Sun Oil Co.'s No. 173 Texas Crude lease in the Saratoga Pool is making 6 bbls., 8 per cent water, at 725 feet. The Cotton Oil Co.'s No. 2 Pope-Ellis is bailing at 800 feet.

The deep sand on the southwest side of the Sour Lake Pool offers nothing of interest this week. The Gulf Production Co.'s No. 5 Jackson is pumping 30 bbls. at 4,000 feet. Its No. 2 Thompson is good for 75 bbls., 8 per cent water, at 3,000 feet. The Sun Oil Co.'s No. 1 Carpenter is heading 185 bbls. at 4,575 feet.

The Humble Pipe Line Co. has entered the Sour Lake Pool with a 6-inch line, connecting with its 8-inch line from Hull to Spindletop.

South Louisiana

In the Vinton Pool, Wilson & Broach's No. 12 Parks is pumping 60 bbls. at 2,450 feet. The Texas Company's No. 18 Vincent bailed salt water at 2,125 feet and is now deepening. The Vinton Petroleum Co.'s No. 59 Vincent is bailing at 2,325 feet.

The Vacuum Oil-Gulf Refining Co.'s joint No. 4-A Farquhar in the Lockport Pool is flowing 200 bbls. by heads at 4,350 feet.

Drilling in the Pools

Weed and Gayle's Nos. 5 Keller and 7 Bay in the shallow sand section of the Boling Pool are drilling. On the northeast side, The Texas Company's No. 2 Farmer is below 3,300 feet. The Sun Oil Co.'s No. 2 Farmer is idle.

At the Barber Hill, Bennett and Moody Corp.'s No. 8 Japhet is below 2,700 feet. The Humphreys Corp.'s No. 4-B Kirby is drilling around 1,575 feet. That company's No. 2-A Kirby is still flowing 750 bbls. per day.

Blue Ridge and Big Creek

In the Blude Ridge Pool, on the northwest flank, Abercrombie Oil Co.'s No. 1-A Robinson is drilling around 3,855 feet. Navarro Oil Co.'s No. 1-B Robinson is at 4,010 feet. No. 2 is rigging. On the south side, Abercrombie Oil Co.'s No. 9 West-Schenck is drilling at 1,075 feet. A derrick is standing for No. 3. Gulf Production Co. has a locatin for No. 10. Same company's No. 5 Invincible, on the southwest, is at 1,800 feet. On the north and east, Gulf company's No. 9-B Blakely is at 2,745 feet and No. 15-C is around 1,545 feet. No. 10 Puscher is at 455 feet. Overly Production Co.'s No. 1 Blakely is a derrick. Woodruff and others' No. 1 Adams is at 655 feet.

At Big Creek, the Gulf Production Co.'s No. 1 J. H. P. Davis is at 3,185 feet. No. 1-A is at 2,235 feet. No. 2 Hansler is around 2,565 feet. A location has been made for No. 40 Davis. The Texas Company's No. 3 fee is at 3,835 feet and No. 4 is rigging.

Hardin County Pools

At Batson, The Texas Company's No. 3 La Jarza, on the east side is a proposed deep test, drilling around 4,500 feet. Kirby Petroleum-Capitol Oil Co.'s joint No. 7 Hodges, on the northwest side, is below 1,435 feet. In the old section, the Gulf Production Co.'s No. 65 Choate is drilling around 875 feet. East Batson Oil Co.'s No. 8 Counselman is drilling around 1,135 feet. Sterling Oil Co.'s No. 6 Hooks is a location.

In the Saratoga Pool, the East Side Oil Co.'s No. 1 Ogden, another proposed deep test on the east side, is drilling around 1,985 feet. Sun Oil Co.'s No. 174 Texas Crude is at 465 feet. Rainbow Oil Co.'s No. 1 Cotton is a location.

The Texas Company's No. 1 Homestead in the Sour Lake Pool is rigging.

Harris County

In the Goose Creek Pool, the Gulf Production Co.'s No. 24 Beaumont is at 2,545 feet and No. 27 Smith is below 1,675 feet. Humble Oil & Refining Co.'s No. 56 Smith is at 4,135 feet, and No. 70 is fishing at 5,135 feet. No. 10 State land, in the bay shore waters, is deepening. No. 17 Galliard Peninsula is shut down at 4,200 feet. No. 32 is drilling deeper. Lake Shore Oil Co.'s No. 3 Duke is at 3,235 feet. The M. & B. Oil Co.'s No. 6 Scorrgea is around 985 feet. F. F. Wilson's No. 7 Busch is rigging.

In the Humble Pool, Czereau & Martin's No. 1 Wheeler-Pickens is between 3,700-3,800 feet. Benedum & Trees' No. 1 Hirsch, on the northwest side, is around 4,500 feet, drilling deeper. Barclay & Meadors set casing in No. 3 Burt, a deep test. The Texas Company has a location for No. 20 House, on the north side.

At Pierce Junction, on the northwest flank, M. Kouri's No. 2 Jones is bailing at 2,850 feet. Gulf Production Co.'s No.

(Continued on Page 110)

SPINDLETOP DECLINES 4,000 BBLS.; TWO COMPLETIONS MAKE 7,000 BBLS.

By P. L. McGreal

BEAUMONT, Tex., Mar. 28.—Two completions in the deep sand section at Spindletop yielded 7,000 bbls. of new production during the week. Still, the gross output shows a decline of 4,000 bbls. compared with last week.

The Yount Lee Oil Co. brought in both wells. No. 25 McFaddin flowed 3,000 bbls. initially and No. 23 Gladys 4,000 bbls. The Gulf company is bailing No. 7 Roche at 4,275 feet and No. 223 Gladys in the old cap rock section at 775 feet.

The production is holding better than was anticipated. Few big wells have been completed in the deep sand area on the southwest during the past three weeks; and notwithstanding that fact, the gross output has declined only about 5,000 bbls. in that period.

Drilling Operations

J. O. Davis' No. 1 Gladys, one-half mile west of deep sand production, is drilling around 3,575 feet.

Operations of the Yount Lee Oil Co. at Spindletop are: No. 24 McFaddin, coring at 4,786 feet; No. 27, drilling 3,649 feet; No. 28, drilling 3,300 feet; No. 14 fee, 2,980 feet; No. 24, drilling 2,935 feet; No. 25, drilling 1,977 feet; No. 6 Gladys City, 3,040 feet; No. 9, reaming 6,364 feet; No. 11, pulling liner 4,280 feet; No. 17, drilling 2,500 feet; No. 24, drilling 3,343 feet; No. 25, drilling 2,227 feet; No. 4 Trembly, drilling 3,876 feet; No. 6 Davis, drilling 3,564 feet; No. 19 fee, rigged up to work over; No. 29 and No. 30 McFaddin, rigging up.

Other operations are: Atlantic Oil Producing Co.'s No. 1 McLean, drilling 2,850 feet; No. 8, drilling 3,700 feet; No. 10 and No. 11, standing; Nos. 14, 16 and 17, derricks. Deep Sand Oil Co.'s No. 1 Rush, drilling 2,700 feet. Hines Oil Co.'s No. 2 Parker, drilling 2,850 feet; No. 1 Gordon, drilling 5,200 feet; No. 2 Roberts, one-half mile east, drilling around 2,610 feet. Sun Oil Co.'s No. 2 McLean, drilling 4,730 feet; No. 3, standing; No. 4, set casing, 5,100 feet; No. 9, drilling 4,010 feet; No. 1 Price, drilling 4,410 feet; No. 2, drilling 3,200 feet. Rio Bravo Oil Co.'s No. 101 T. & N. O., one-half mile north of production, is fishing at 3,350 feet; No. 50, drilling deeper. Turnbow Oil Co.'s No. 1 Weed, No. 1 and No. 2 Banks, standing. Plummer Oil Co.'s No. 1 Quinn, derrick. Walker Oil Co.'s No. 1 Quinn, fishing 4,000 feet. Magnolia's No. 3 fee, drilling 1,050 feet; No. 4, drilling 2,050 feet. Davis' No. 1 Gladys, drilling 4,390 feet. Gulf's No. 12 Weed "A," drilling 5,000 feet; No. 9 Oakwood, drilling 5,050 feet; No. 10, drilling 2,750 feet; No. 4 Mann, drilling 2,700 feet.

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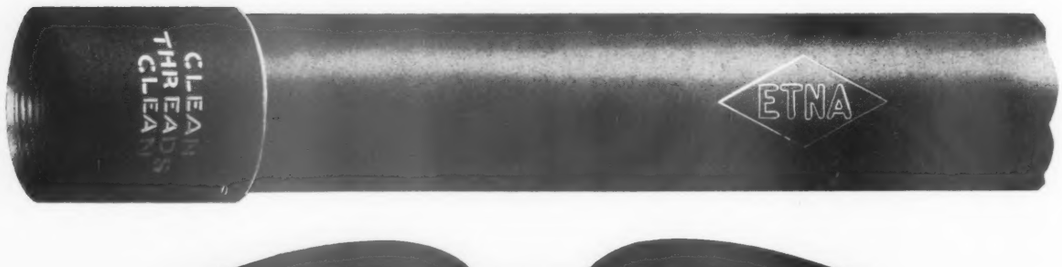

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ESTABLISHED 1828

Jim Hogg County Gasser Goes to Oil

Another in Zapata County Begins Spraying Oil From Different Sand Than Jennings Field

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Mar. 28.—The past week in Southwest Texas was not without many interesting features. Edward St. Albans' No. 4 Lopez in Block No. 7 of Share No. 1 of the Las Animas tract in Jim Hogg County, 450 feet from the west line and 150 feet from the south line of the block, reported about the middle of January as a 45,000,000-foot gas well in sand at 2,138-40 feet, has gone to oil, and late last week was flowing natural 250 bbls. a day. This well is at the north end of the line of production, mostly gas and with some oil, extending northeast from the Henne, Winch & Fariss Field across the Holbien ranch. There is a little production on farther northeast of it yet, and more drilling will continue as long as the line of production can be followed. This gasser going to oil may be followed by other gas wells in that same territory doing the same. One gas pipe line is counting on getting gas from that district.

Another interesting feature of the week is The Texas Company's No. 4 Jennings in Zapata County in the Cerrito Blano grant, 12,360 feet from the southwest line and 6,945 feet from the southeast line of the grant. It was reported on March 11 as a 50,000,000-foot gas well with rock pressure of 700 pounds. Last week, while changing the valves, the well began spraying oil. It is in a sand at 1,955-61 feet and several miles from production. The old Jennings gas field is a few miles north and the Mirando oil field 10 miles north. It is in a different sand from any in the old Jennings Field.

Laredo Completions

There were a total of 24 completions in the Laredo district last week; and of these, 16 were abandonments as failures, the largest percentage in months, but some of them were tests that have been shut down and were failures before. Of the eight producers, Barkley, Meadows & Morgan completed No. 3 King Harper in Survey 323 of the Cole Field at 1,725 feet, estimated at 30,000,000 feet of gas. Cole Petroleum Co. completed No. 34 Benavides in Block No. 12 of Survey No. 14 in the Cole Field at 1,537 feet, making 40,000,000 feet of dry gas. Cole completed No. 33 Benavides in Block No. 14 of Survey No. 15 of the Cole Field at 1,652 feet, making 50,000,000 feet. Magnolia Petroleum Co. completed No. 34 Martinez in Block No. 15 of Survey No. 256 in the Henne, Winch & Fariss Field, Jim Hogg County at 2,055 feet, making 30 bbls. of oil. Charco Redondo Oil Co. completed No. 54 in the Charco Redondo Field in Zapata County at 170 feet, No. 61 at 174 feet, No. 55 at 163 feet, all making about 5 bbls. of oil each on the pump; Houston Oil Co.-Sun Oil Co.'s No. 1 A. Benavides, located on the corner where Blocks 475, 476, 477 and 478 of the A. M. Bruni survey and north of the O'Hern & Seacord wells, in a sand at 1,619-30 feet, came in late last week estimated at 50,000,000 feet of gas. The casing failed to hold and the well is running wild. An effort is being made to close it in.

Abandonments

Of the completions and abandonments as failures in more or less proven territory, Edward St. Albans' No. 1 Holbien in Block No. 38 of the Holbien ranch, in Jim Hogg County, was abandoned dry at 2,196 feet; and No. 5 Lopez, in Block No. 7 of Share No. 1 of the Las Animas ranch, tested salt water at 2,138 feet. No. 5 Lopez is just 650 feet east of No. 4, which came in January a gasser and is now making oil. No. 1 Holbien is about 2 miles northeast. No. 20 Merchant State Bank of the Magnolia, in Survey No. 415, at the lower end of the Randado Field in Jim Hogg, was abandoned at 1,500 feet. O'Hern & Seacord abandoned their No. 1 Benavides in Survey No. 174, which was the discovery well at 1,765 feet, and made oil and gas and was deepened to test a sand at 2,730 feet that produced a big volume of gas tested through tubing in No. 2, which is immediately north about 450 feet. No. 1 tested dry at that depth. No. 2, tested with tubing and with 1,000 feet of open hole, probably made the gas from some other sand. No. 1 has been abandoned. Moody Oil Corp.'s No. 1 J. Benavides, in Block 40 of the Mesquite pasture in Jim Hogg, tested dry at 1,850 feet and was abandoned. It is a couple of miles northeast of the O'Hern & Seacord wells. Houston Oil Co.-Claggett's No. 1 S. Benavides, Survey 714, in Duval County, a little northwest of the Cole Field, was dry at 2,004 feet, and has been abandoned. Cole Petroleum Co.'s No. 23 Benavides, in Block No. 8 of Survey No. 8 in Webb County, a few miles west of the Cole Field and a half mile east of the first wells drilled by Cole, is a failure at 3,475 feet and abandoned. M. & N. Drilling Co.'s No. 1 Vela, in the Carolina-Texas Field, Survey No. 1,012, Block No. 12, was abandoned at 3,140 feet. Hazlitt-Simmons' No. 2 Vela, Survey No. 1,012, Block No. 4, has abandoned the location. Crown Central Corp. has abandoned No. 21 Bruni, in Webb County, Block 44 of the Bruni tracts in the Aviator Field, at 1,735 feet.

San Antonio District

Elsewhere in Southwest Texas, there were 11 completions, 3 of them wildcat failures, 3 proven field failures and the others producers. In the Rockdale shallow field in Milam County, Noack Oil Co. completed No. 3 Smith, dry at 2,000 feet and abandoned; and in the same field Bartlett Brothers abandoned No. 3 Kevil, and E. H. Noack abandoned No. 2 Phillips-Perry. Completions of producers at Rockdale were W. T. Ramsel Oil Co.'s No. 3 Gohman, T. S. Arnett Survey, 50 bbls.; Wills Oil Co.'s No. 4 Kevil, 25 bbls.; Coffield & Hale's No. 1 John Hicks, 25 bbls.; Gaither Production Co.'s No. 7 Gaither, 6 bbls., and Henry Davis' No. 3 Billy Smith, 15 bbls.

Cole Gas Field—Duval County

Cole Petroleum Co.'s No. 23 Benavides, Survey 8, Block 9, located 150 feet to southwest and northwest lines is drilling at 3,475 feet; No. 33 Benavides, Survey 15, Block 14, located 660 feet to northwest and northeast lines, has a sand at 1,641 feet and set casing; No. 34 Benavides, Survey 14, Block 12, located 450 feet to northwest and southwest lines, has a sand at 1,526 feet and set casing; No. 36 Benavides, Survey 412, Block 14, located 169 feet to east line and 266 feet to north line, has been spudded in; derrick is up in Survey 21, Block 6, at 150 feet to southeast lines and 450 feet to southwest lines, for No. 37 Benavides; No. 39 Benavides, Survey 19, Block 8, located 660 feet to northwest and southwest lines, has been spudded in, and in Survey 40, Block 7, at 660 feet to northwest and southwest lines, location made for No. 40 Benavides. Barkley-Meadows-Morgan-Gulf's No. 3 King-Harper, Survey 323, located 150 feet to northwest and south west lines, is on sand at 1,718-25 feet and is testing. Houston Oil-Sun Oil Co.'s No. 1 A. Benavides, corner of Blocks 475-476-477-478, Arispe grant, set casing at 1,690 feet. Houston Oil-Claggett's No. 1 S. Benavides Survey 714, located 155 feet to SE cor., is drilling at 700 feet. Cintex Petroleum Co.'s No. 2 Willman, Survey 354, located 1,050 feet to northwest lines and 150 feet to southwest lines, is standing at 2,032 feet after testing salt water through Halliburton tester.

O'Hern & Seacord Pool

Magnolia Petroleum Co.'s No. 1 Benavides, Block 486, located 300 feet to northeast and southeast lines, is drilling at 1,700 feet. O'Hern & Seacord's No. 1 Benavides, Survey 174, Block 12, located 660 feet to northwest and 660 feet to southwest lines, at 2,720 feet tested dry and is shut down. O. W. Killam's No. 1 Bruni, Block 585, located 600 feet to east line and 150 feet to north line, has derrick up. Moody Oil Corp's No. 1 J. Benavides, Mesquite ranch, Block 40, at 150 feet to northwest and southwest lines, is drilling at 600 feet.

Piedras Pintas Dome

Humble Oil & Refining Co.'s No. 1 Walsh, Survey 185, located 700 feet to west line and 650 feet to south line, is milling out, total depth 2,939 feet.

Randado Field—Jim Hogg County

Grayburg Oil Co.'s No. 16 Weil, Survey 81, Block 9, located 150 feet to north and east lines, at 1,306 feet is on sand and has set casing; No. 17 Weil in the same block and survey has been spudded in. Magnolia Petroleum Co.'s No. 20 Merchants State Bank, Survey 415, located 450 feet to west line and 700 feet to north line, is drilling at 1,290 feet; No. 21 Merchants State Bank, Survey 415, is moving on, location not yet announced. Livingston-Ritchson's No. 1 Palacious, Survey 287, Block 18, located 150 feet to NW cor., is drilling at 1,388 feet. Magnolia Petroleum Co.'s No. 20 de la Garza, Survey 291, Block 7, located 450 feet to SW cor., is drilling at 1,520 feet.

Henne, Winch & Fariss Field

Magnolia Petroleum Co.'s No. 34 Martinez, Survey 256, Block 15, at 350 feet to north line and 450 feet to west line, at 2,050 feet is drilling in sand with 200 feet of oil in the hole. This well is located on the west edge of production. In the same survey and block, at 400 feet to west line and 150 feet to south line, the No. 35 Martinez of the Magnolia Petroleum Co. has been spudded in.

Kitselman & St. Albans Pool

Edward St. Albans' No. 5 Lopez, Share 1, Block 7, located 1,100 feet to west line and 150 feet to south line, at 2,138 feet tested salt water; No. 6 Lopez in the same share and block at 500 feet to south line and 450 feet to east line, has been spudded in; No. 1 Holbien, Block 38, Hogg Ridge, Share 3, located 150 feet to NW cor., is drilling at 1,980 feet. K. & S. Corp.'s No. 57 Holbien, Survey 17, Block 40, located 330 feet to NE cor., is ratholing at 1,250 feet. Associated Oil Co.'s No. 3 Martinez, Share 1, Block 18, located 800 feet to west line and 150 feet to north line, is fishing at 2,142-5 feet.

Alworth Pool

Magnolia Petroleum Co.'s No. 19 Merchants State Bank, Survey 236, at 450 feet to south line and 150 feet to west line, is reported making 40 bbls. oil and some water at 1,140 feet; derrick is up in the same survey at 450 feet to west line and 150 feet to south line, for No. 22 Merchants State Bank. Alworth Brothers' No. 3 M. Garza, Survey 39, Block 4, located 490 feet to northwest line and 150 feet to southwest lines, is testing at 1,030 feet. It went on the pump last Wednesday and looks like a 60-bbl. well.

Schott Pool—Webb County

Jones and others' No. 3 Garcia, Survey 463, at 150 feet to NE cor., is ready to spud in. Magnolia Petroleum Co.'s No. 6 Garcia, Survey 58, located 1,990 feet to west line and 440 feet to north line has set casing at 1,600 feet.

Aviator or Bruni Tracts

Ball and others have derrick up in SW cor. of Block 58 for the No. 1 Puig; No. 4 Puig, Block 74, SE cor., testing at 3,812 feet, has failed thus far to make a well and will be dropped from these reports. O. W. Killam's No. 1 Puig, located NE cor. of Kirkpatrick 160-acre tract, is drilling at 400 feet. Edward St. Albins'

(Continued on Page 110)

DRILLING TO FOLLOW SHOWINGS IN NORTHWESTERN DUVAL COUNTY

By B. D. Stevenson

SAN ANTONIO, Tex., Mar. 28.—Wildcat operations in Southwest Texas got set back a little last week when the Magnolia Petroleum Co.'s No. 1 Hahl, southwest corner Survey No. 51 in the northwestern part of Duval County, at 4,090 feet tested 1,000,000 feet of dry gas and a rock pressure of 150 pounds. The size of the well does not conform to the way the well "cut up" when the drill went into the sand. The pressure started to bring the fluid out of the hole and there was some difficulty getting the drill stem out. The well is 20 miles from any production and is 8 miles from the east line of the county and 10 miles from the north line of the county. The Schlessinger well, No. 1 Hahl, C NW NW of Survey No. 76 of the Hahl ranch and about 3 miles southeast of the Magnolia well, has been abandoned at 3,008 feet, and another well started. At 2,473-82 feet a month ago it had a sand that looked like a possible oil well and might have made as much as 4 bbls. With the showing of oil in Schlessinger's well and gas in the Magnolia well, more wildcatting in that district is justifiable. No other wells have ever been drilled near them.

T. C. Hadley has abandoned No. 1 Garcia in Starr County, on Survey 538, after drilling to 64 feet and Humble Oil & Refining Co. has abandoned No. 2 Dilworth in the northern part of Duval County on Survey No. 120 at 2,203 feet. Roxana abandoned No. 1 Vela in Jim Hogg County at 2,510 feet in Survey 579, Share No. 3. W. O. Wheatley has abandoned No. 2 Kruger in Survey No. 1,570, Block No. 4, near the old Reiser gas field in Webb County, at 2,370 feet.

Bastrop Derrick Skidded

Elsewhere in Southwest Texas Johnson Brothers have abandoned No. 1 Williams, Doyle Survey, Bastrop County, at 1,720 feet. Yoro Develpment Co. has abandoned No. 1 Tom Burns at Edgar, in DeWitt County, at 2,500 feet, and is skidding the derrick to drill another. Alamo Drilling Co. has abandoned No. 1 Kennedy, in western Medina County, at 1,456 feet in the top of the Edwards.

The Walker-Van Duyn No. 1 Leigh, in Kerr County at Center Point, has made more hole in Pennsylvania lime, but otherwise the situation has remained unchanged. At late reports it was drilling at 2,085 feet and has had more or less of slight oil showing in the lime since 1,610 feet. It topped the Pennsylvania at 680 feet. It will continue drilling until there is a change in the formation. It is an interesting test because in such pure wildcat territory and north of the Balcones fault.

During this week a test is due in the Empire Southern well in DeWitt County, west of Cuero on the Smith farm. The well is on a sand at 2,430 feet that shows some gas. Casing was set and the well scheduled to drill in and test a week ago.

(Continued on Page 161)

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To Abandon Moab Discovery Well

Shafer Well to Be Drilled to 6,000 Feet to Test District. Fear of Flood From Snows

By Frank B. Taylor
Staff Correspondent, Rocky Mountain Area

CASPER, Wyo., Mar. 26.—Over in the mountains that form the Continental Divide in western Wyoming the snow has been piling up unusually deep in the canyons and over the heights during the past winter. Six to eight feet is reported at many points. This region is the headwater country of the Green River that flows into the Colorado and the people who live along the valley of the Colorado fear possible disaster when the spring warmth starts the snow down the rivers.

Already the people in the Moab district in eastern Utah are becoming anxious over the prospects of floods along the Colorado River and the oil men in the new area south of Moab are being warned of possible damage.

The derricks and camps at Cane Creek are located against the cliffs on the talus slopes at the river's edge. Should an exceptionally high flood come there, it is certain that the camps and all surface equipment would go and even the crews may find themselves in a dangerous predicament, for the steep cliffs that form the canyon through which the river runs are not scalable except at certain places.

Moab District Wells

Prospects in the Moab district of Utah do not appear promising. The Midwest Refining Co. and the Utah Southern Oil Co. have decided to abandon the discovery well that has been drilling for two years. In fact the discovery well would be abandoned now but for the wildcat drilling on the Shafer Dome, 5 miles to the south by these two firms.

The Shafer well is now at 4,883 feet and setting 6½-inch casing, the bottom of the hole, however, is at 5,290 feet or over a mile in depth. It is intended to drill this well to a depth of 6,000 feet, as a test of the district, the hole is now in rock salt.

The discovery well is shut down at 5,000 feet. The showing of oil and gas found about 4,976 feet did not prove commercial when the hole was cleaned out and seemed to be a small pocket. Owing to the trouble encountered in this well when it was attempted to produce the well at the showing at 2,000 feet, it seems to be of no use to shorten the hole back to this level and try to make a producer there, as the water would certainly break in as it did before.

On the Cane Creek Dome, where the discovery well is located, Snowden & McSweeney have started a well that will be watched with interest. There is come conjecture that the Cane Creek discovery well found an unusually large pocket at 2,000 feet and the Snowden & McSweeney test will show what this amounts to when the hole reaches 2,000 feet. This test is now drilling at 760 feet. In case the Shafer Dome well, 5 miles south of the Cane Creek Dome, finds a showing between its present depth and 6,000 feet, the discovery well will be drilled on down on Cane Creek to test the horizon.

Possession of the river bed is to be adjusted in the Supreme Court. The State of Utah claims the bed of the Colorado River for some 70 miles, including the portion where the Cane Creek Dome lies across the river. The Federal Government also claims the river bed and had granted permits to certain applicants. The State of Utah granted a State lease on the river bed and has joined with The Texas Company in a suit to annul the Government claims. The matter appears to hinge on whether the river is navigable or not.

Oregon Basin Strike

The new strike of the Ohio Oil Co. in the Oregon Basin Field, Park County, about 15 miles south of Cody, Wyo., is to have five wells drilled this coming season if present plans are consummated. The string of tools lost in the Ohio's well as reported last week, have been recovered and the hole is drilling again with the bit close to the Tensleep sand. It now appears that the Embar formation, which is a limey sand, will be found to extend from about 200 feet above the Tensleep to the top of that sand without a break between the two. The black oil was found in the upper Embar and the hole has been full of oil ever since the show was first discovered. The well flowed in spite of careful efforts on the part of the crew to keep the oil in the hole and the flow indicated a production of 500 bbls. for the well. It is quite likely, from the experience of other black oil fields that the well will find more production in the Tensleep sand and this sand is expected daily.

The Utah Oil & Refining Co. drilled in a good well on Section 2-26-90, in the Lost Soldier Field in Carbon County. The production was found in the Frontier at 1,740 feet and the well started off at 200 bbls. naturally. In the same field, the Hughes Royalty Co. has a showing in the Morrison formation under the Lakota and will shoot. This formation was considered as nonoil bearing up to a few years ago in the Rocky Mountain region, but it has been found productive at Salt Creek where the Midwest Refining Co. drilled some deep tests.

The Wyomont Oil Co., drilling for the Shannon sand in the Big Muddy Field, has a 10-bbl. producer at 1,140 feet in that sand. This company has been developing the shallow sand in the east end of the Big Muddy and now has five small producers in the field.

The Rainbow Petroleum Co., drilling in the LaBarge Field, is reported as making a completion of the well the company has been drilling on the leases there. The depth is reported at about 1,200 feet and the well is estimated good for 175 bbls. naturally.

Salt Creek Completions

In the Salt Creek Field, the Midwest Refining Co. completed three large wells in the Lakota sand and one average producer in the shallow sand, for the subsidiary companies associated with the Midwest Refining Co.

The Wyoming Associated Oil Co. completed two new wells, one a Lakota sand well on Section 35-40-79 found the pay at 2,522 feet and the well started off at 440 bbls. natural flow. The second well was drilled on Section 23-40-79, and found oil at 1,155 feet, but did not flow and will make a pumper of about 25 bbls.

On Section 23-40-79, the Wyoming Oil Fields Co. drilled into the Lakota sand at 2,462 feet and the well started off at 3,976 bbls. natural flow, the best completion of the week in this region. This well will be shut in until needed.

The Midwest Oil Co., drilling to the Lakota sand on Section 35-40-79, found a good well that started off at 2,120 bbls. naturally, and this well was also shut in until its production will be needed in the future. The Lakota sand was found at 2,339 feet.

Torchlight Field

The Torchlight Field in Big Horn County is the subject of a discussion between C. E. Orchard of West Virginia and the Producers & Refiners Corp. Mr. Orchard recently bought several large tracts in the field and has announced a development program for the coming season. The Producers & Refiners Corp. also has some land in the field and a conference is now being held at Basin between Mr. Orchard and the Producers & Refiners looking to the consolidation of interests and the development of the Torchlight Field next summer.

The Torchlight Field is a shallow field lying about 5 miles east of Basin, the county seat of Big Horn County. The wells find a very high grade crude at about 400 feet in sand lenses in shale and this production goes to Greybull. The field was developed early in the boom days here and the production has dwindled until at present Torchlight oil is run in with Greybull oil and the combined production is only 20 bbls. daily. It is considered that by drilling new wells and using intensive methods, the Torchlight production can be increased and made to pay a profit for the producers.

The Federal Land Office at Lander, Wyo., has been ordered discontinued, and the records and other matters will be handled from the Cheyenne office. Other land offices in adjoining states were also included in the executive order that discontinued the Lander office. This move will make the oil operator go to Cheyenne to file applications for permits from what was formerly the Lander district. The Government moved the Douglas Land Office to Cheyenne last year, so that all applicants from the central part of the State have been compelled to do business in Cheyenne also.

Oil Assessment

State assessments on oil properties and oil-field material were debated before the State Tax Commission at Cheyenne the past week by representatives of the various oil firms interested. The oil companies and individual operators are up in arms over the recent assessments made against the oil firms in general over the State, and the main objection is that the assessment valuations are decided upon the returns of the oil companies to the Board of Equalization.

The oil companies made the returns on equipment and production correctly, without making any reductions whatever. Thus the assessments were made on the actual valuation of the properties and equipment, the latter going on the assessment rolls at its first cost. Other valuations throughout the State are subject to reductions by firms and business men, so that the assessed valuation is only a small part of the intrinsic value. This is shown in the assessment valuations against some of the railroads in this State.

The petition of the oil men is that the State either reduce the assessments against oil properties to a par with other classifications in Wyoming, or else bring the valuations on other classifications up to their third value. In either case, the oil fraternity would be content to pay

(Continued on Page 114)

ONTARIO OIL AND GAS PRODUCTION REPORTED BY MINISTER OF MINES

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Mar. 26.—Official figures of the Ontario petroleum and natural gas production for 1926 were given in the annual report of Charles McCrea, minister of mines for Ontario, presented to the provincial legislature this week. The report shows that the production of crude petroleum from all the Ontario pools in 1926 was 136,971 bbls., valued at $376,832, a decline of 6,473 bbls. from the 1925 figures. The natural gas commissioner, according to the report, attributes the decrease to the natural decline of the oil fields, some of which have been producing for over 60 years, and to the removal of the petroleum bounty on July 1, 1925.

For the various pools, the production, in barrels, for 1926 is as follows: Petrolia-Enniskillen, 55,537 bbls.; Oil Springs, 38,349; Moore Township, 2,414; Sarnia Township, 1,877; Plympton Township, 1,030; Bothwell, 25,382; Dover West, 985; Raleigh Township, 676; Onondaga Township, 361; Mosa Township, 7,868; Thamesville, 2,376; Dunwich Township (Dutton and Iona), 139. Except for the Trenton limestone pool in Dover West Township, Kent County, practically all this crude is shallow production from various horizons in the Onondaga limestone.

Natural Gas Situation

Dealing with the natural gas situation, the report reads:

"A preliminary estimate of natural gas production in 1926 is 7,364,039,000 cubic feet, valued at $5,068,911, representing an increase from 1925 of 323,474,000 cubic feet, and $1,180,514. This increase is due to several factors; an increase in the number of consumers in the eastern part of the southwest peninsula of Ontario; an increased supply of natural gas obtained by cleaning out old wells that were partially closed up; and to the drilling of a few good producers in Norfolk and Haldimand Counties. The supply of gas for the first time in many years was sufficient to meet the demand. Search for new supplies of gas continues. The raise in gas rates has stimulated drilling in outlying areas."

A similar report for the province of Alberta presented to the legislature of that province by R. G. Reid states.

"Alberta leads all Canada in the production of coal, crude oil and natural gas. Since our last statement new producing wells have come in in the Turner Valley district, and the production of petrol has been thereby greatly increased. When these four wells now producing have developed sufficiently and provision is made for taking care of the production, the output will be in the vicinity of 1,000 bbls. a day.

"One remarkable feature connected with the production of wet gas in this field is that so far there seems to be no diminution in the flow. One Alberta well still holds the world's record for daily rate of production of naphtha, and this is of such concentrated quality that it requires to be diluted before it is suitable for commercial purposes."

The report also states that petroleum production totaled 217,088 bbls. in 1926, worth $906,068, compared with 183,491 bbls. the previous year valued at $845,394. The natural gas output increased from 9,119,500,000 cubic feet in 1925,

(Continued on Page 154)

Plan Seal Beach Drilling Agreement

Effort to Hold Off Completions Due to Lack of Pipe-Line Facilities and Storage Room

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Mar. 26.—In an effort to keep production in the town lot section of the Seal Beach Field well in hand, operators in that section are making strenuous attempts to effect some sort of a drilling agreement to hold off completions in that thickly developed area, and, while nothing definite has yet been agreed to, some progress has been made, and the leaders in this movement hope for a satisfactory solution, notwithstanding the fact that lease requirements and city regulations call for continuous work. Three meetings already have been held, and those interested appreciate the seriousness of the situation unless some determined action is taken, as considerable difficulty is expected by the numerous operators when they attempt to dispose of their oil following completion of present drilling projects. None of the pipe-line companies want to obligate themselves to handle this anticipated output, due to inability to dispose of the surplus and the general lack of adequate storage facilities.

The Pan American is expected to finish its second producing well in the town-lot section of the Seal Beach Field some time during the coming week; and, since it is but a short distance removed from the company's first well, satisfactory production is practically assured, unless, of course, the company should inadvertently drill into bottom water or experience some other misfortune at the last moment. Work on this new potential producer has been slowed up somewhat, and every inch of the hole is being cored. The well is No. 3 Naples, started a short time after the completion of No. 1, and a few days previous to the spudding in of Nos. 2, 3 and 5, all of which are below the 4,000-foot level at present. In addition to this group on the Naples property, the Pan American has three additional wells in this section, the deepest of which is No. 1 Bryant, which recently passed the 2,500-foot level, and the shallowest, No. 1 Marquis, now rotating ahead at 1,100 feet.

Drilling Program

Paul Getty should finish his initial producer, No. 1 Cleaver, in the town-lot section, within 10 days, although the crew has been going ahead rather cautiously for the past 50 or 100 feet to reduce the possibility of running into a fishing job, and at the same time determine the proper point at which pipe will be landed. Getty has four other drilling projects in the town-lot section, and spud will be made in two additional holes. The California Petroleum and General Petroleum, which concerns contemplate a rather aggressive drilling campaign involving some 8 or 10 wells, actually spudded in four new hole each, and preliminary work is being rushed on the balance. The California Eastern Oil Co. is rushing work on five new wells, while George F. Getty has already spudded in the first three of a 10-well program.

The Richfield Oil Co. has two wells already under way, but temporarily suspended work on the third because of a cloudy title to the property upon which the rig was located. That the Marland is not losing any time whatever in protecting its Selover property from drainage by operators drilling in the town-lot section is evidenced by the fact that the company is rigging up Nos. 9, 10, 11, 12, 13 and 14, direct offsets in the extreme western part of the Selover lease adjoining the area now being intensely developed. The Superior Oil Co. is rigging up several wells, and, while spud has not yet been made, two or three of these holes should get under way in the very near future. There are 81 rigs or locations spotted in the town-lot section, and, while only a part of this number are now drilling, some 25 or 30 more should spud in within 10 days.

New Wells Finished

Three new wells were finished in the older section of the Seal Beach Field, the Associated being responsible for two and the Marland for the third. The latter's acquisition was No. 4 Selover, a new well, the largest completion recorded. It was drilled to 4,769 feet, and, flowing through a ¾-inch bean under a pressure of 510 pounds, tanked 1,090 bbls. of exceptionally clean 25.6 gravity oil daily. The Marland has five potential producers on the Bixby lease nearing completion in this district, and, while they will probably be finished in the upper or Bixby zone, they will nevertheless register satisfactory production. No. 4 Selover, the company's latest completion, was brought in flowing from the lower or Selover sand. The Associated successfully finished its first producer on the Hellman property and this new well, which is the most easterly producer, is flowing 1,355 bbls. of clean 23.7 gravity oil daily from 4,456 feet. No. 1 Hellman, which the Associated drilled in the northern part of this lease, was abandoned a year or so ago as a duster and although the company drilled a series of structure survey holes it is doubtful if any information of a definite character was revealed from this source. No. 2 Hellman, brought in early this week, was not spotted as the result of any information gained directly from these survey holes but was rather due to the completion of the company's No. 1 Bryant to the west several weeks ago. The Associated is to be congratulated on its success in this field and the completion of two wells on the Bryant and another on the Hellman lease reveals the existence of a rather nice reserve in the western part of the latter property. This will undoubtedly be drilled up conservatively as it is amply protected from drainage. In addition to finishing No. 2 Hellman, the Associated also brought in No. 2 Bryant, its second producing well on this lease, and started preparations for the completion of No. 6 Bryant, due in within two weeks. No. 2 Bryant, drilled to 4,340 feet and finished with an 8⅝-inch landed at 4,317 feet, is flowing 920 bbls. of clean 24.5 gravity oil daily. No. 4 Bryant blew in as a gasser a few days ago making approximately 3,000,000 feet of gas daily but the company has killed it to drill ahead and bring it in as an oil well. The Standard's next completion at Seal Beach will be No. 10 San Gabriel and this well will be followed into production by Nos. 11 and 12, both of which have just passed the 3,600-foot level.

Potrero and Goleta Delayed

The failure of the California Eastern Oil Co. to open up a new field adjacent to the Associated's wildcat at Potrero has eliminated this area as an immediate threat so far as overproduction of crude oil is concerned and, while additional wildcatting will be undertaken in this section, it can not possibly exert any effect on state production for at least six months. Work is going along rather slowly in the Goleta Field and, while the California Eastern and Transcontinental companies are building roads preparatory to initiating new work it is not believed this new field will have any immediate effect on state production, due to the fact that the acreage is held in large blocks.

Huntington Beach

Production at Huntington Beach appears to have become somewhat stable during the past few weeks and the decline from now on will be considerably less. There were quite a number of new wells and recompletions listed in this area and, in contrast to some of the wells completed during the past fortnight, there were three or four fairly large producers finished. The Standard's No. 4 Pacific Electric, which is making 1,150 bbls. of

(Continued on Page 153)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, Well and Location—	S-T-R	Depth	Status
Smith Pet. Co., No. 1 Johnson, Hawthorne	17- 3-14	6,000	gr. sd. drilling
General Pet., No. 1 Smith, Potrero	35- 2-14	4,270	sd. sh. drilling
General Pet., No. 1 Guiberson, Potrero	35- 2-14	Rig	wait. devel.
Calif. Eastern, No. 1 Smith, Potrero	35- 2-14	5,195	gr. sd. drilling
Calif. Eastern, No. 1 Santa Monica, Potrero	27- 2-14	Mtl.	building rig
Associated, No. 1 Cypress, Potrero	34- 2-14	4,450	cmtd. oil sand
Getty, Geo. F., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Getty, Geo. F., No. 2 Cypress, Potrero	34- 2-14	Rig	abandoning
Getty, Paul, No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
California Pet., No. 1 Sutton, Potrero	34- 2-14	Rig	wait. devel.
California Pet., No. 1 Toma, Potrero	35- 2-14	Rig	wait. devel.
California Pet., No. 1 Armour, Potrero	35- 2-14	Rig	wait. devel.
Cole, Fred E., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Dill Oil Co., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Walker, Fred, No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Potrero Oil Co., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Dominguez Extension, No. 1 Compton, Dominguez	22- 3-13	5,225	sd. sh. drilling
Circle Oil Co., No. 1 Pomeroy, Manchester	22- 3-14	3,358	suspended
Cardiff Oil Co., No. 1 Oceanside, San Diego	24-13- 4	2,270	sd. sh. drilling
Standard, No. 1 University, San Fernando	15- 2-15	5,675	hd. sd. drilling
Standard, No. 1 Austin, Topango	11- 1-17	2,450	hd. sd. drilling
E. J. Robinson, No. 1 A.P.K., San Juan Capistrano	13- 8- 8	2,414	gas show
Oceanside Oil Co., No. 1 Pacific, San Diego	23-11- 5	3,210	suspended
Sou. Calif., Drlg. Co., No. 1 Matteson, El Segundo	1- 3-15	4,400	suspended
Petroleum Sec., No. 1 Weston, El Segundo	27- 4-14	511	hd. sd. drilling
Calif. Pet. Dev., No. 1 Spitz, Capistrano	2- 8- 8	4,000	idle—rain
Petroleum Sec., No. 1 DeBaker, Bandini	18- 2-12	5,470	br. sh. drilling
Union, No. 1 Moser, Athens	12- 3-14	5,690	fishing
General Pet., No. 1 Lomita, Sunset Beach	19- 5-11	4,700	hd. sd. drilling
Johnson, Geo. W., No. 1 Wickham, Los Angeles Co.	32- 5-17	2,839	test, show
Rider, E. R., No. 1 El Segundo, Los Angeles Co.	12- 3-15	2,300	suspended
Clearwater Pet., Well No. 1, Los Angeles Co.	16- 3-12	1,675	abandoning
Green, H. M., No. 1 Structure Hole, Los Angeles Co.	27- 1-13	1,400	suspended
Reliance Home Inv. Co., No. 1 Leuzinger, Los Ang.	8- 3-14	Mtl.	building rig

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Associated, No. 1 Smith, Kettleman Hills	12-23-18	2,043	rigging rot.
Bolsa Chica, Well No. 1 Kettleman Hills	30-23-19	2,365	suspended
General Pet., No. 1 Burbank, Kettleman Hills	30-23-19	3,060	reaming
General Pet., No. 1 Dome, Kettleman Hills	26-22-18	....	location
C. C. M. O., No. 1 McGlashan, Kettleman Hills	17-24-19	610	sd. drilling
South Coalinga, Well No. 1 Kettleman Hills	35-24-19	2,150	bl. sh. drilling
Ahlburg Gas Co., Well No. 1 Kettleman Hills	7-23-23	Rig	rigging up
Milham Explt'n., No. 1 Kettleman, Kings Co.	2-22-17	180	sd. drilling
Shell, No. 2 Berlywood, Moorpark	32- 3-20	2,310	hd. sd. drilling
California Pet., No. 1 Camarillo, Ventura Co.	21- 2-20	1,650	hd. sd. drilling
C. C. M. O., No. 1 Hobson, Ventura Co.	22- 3-24	5,865	cmt. fish
C. C. M. O., No. 1-B Hobson, Ventura Co.	16- 3-24	3,025	bl. sh. drilling
Milham Explt'n., No. 1 Sexton, Ventura Co.	19- 3-22	7,100	fishing
Standard, No. 1 Camarillo, Ventura Co.	29- 2-20	4,950	fishing
Standard, No. 1 Montalvo, Ventura Co.	17- 2-22	4,425	gr. sd. drilling
Petroleum Sec., No. 1 Diablo, Ventura Co.	4- 4-18	1,320	idle—rain
Miley Explt'n., No. 2-A Casitas, Ventura Co.	7- 3-25	550	idle—rain
Rio Grande, No. 1 Canet, Ventura Co.	9- 3-23	4,515	sd. sh. drilling
Parkford, E. A., No. 1 Strathern, Ventura Co.	5- 1-18	2,220	sd. sh. drilling
Star Petroleum, No. 1 Canet, Ventura Co.	13- 3-23	3,210	fishing
Richfield, No. 1 Janes, Ventura Co.	16- 5-18	1,650	idle—rain
Richfield, No. 27 Piru, Ventura Co.	35- 5-18	1,480	idle—rain
Superior, No. 1 Pena, Ventura Co.	18- 4-17	3,090	sd. sh. drilling
Milham Explt'n., No. 2 Buttonwillow, Kern Co.	8-28-23	3,988	land pipe
Milham Explt'n., No. 3 Buttonwillow, Kern Co.	7-29-24	Mtl.	building rig
Pacific Eastern, No. 1 Bakersfield, Kern Co.	6-30-28	3,750	hd. sd. drilling
C. C. M. O., No. 1 Quinn, Delano	23-25-27	300	sd. drilling
Union, No. 1 Gill, Famosa	8-28-27	3,281	gr. sd. drilling
Union, No. 1 Colm, Kern Co.	24-28-20	960	bl. sh. drilling
Standard, No. 1 Bacon, Kern Co.	27-28-20	....	location
Marland, No. 1 Jacalitos, Fresno Co.	22-21-15	3,750	land pipe
Petroleum Sec., No. 1 Aniotz, Monterey Co.	2-22- 9	1,755	hd. sd. drilling
Petroleum Sec., No. 1 Sandy, Monterey Co.	18-27-13	....	location
Ozena, No. 1 Allensworth, Tulare Co.	26-24-24	2,019	bl. sh. drilling
Grafford, C. W., Well No. 1, Tulare Co.	26-24-24	2,525	hd. sd. drilling
Walkiln Pet., No. 1 Emerick, San Luis Obispo Co.	35-27-10	2,470	redrilling
Richfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	Rig	suspended
Shell, No. 1 Cowell, San Mateo Co.	16- 5- 5	1,820	hd. sd. drilling
Shell, No. 1 Murphy, Petaluma	29- 5- 6	4,715	hd. sd. drilling
Talbot Oil Co., Well No. 1, Alameda Co.	15- 3- 3	470	hd. sh. drilling

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This week	Daily Average	Total Last week	Daily Average	This year To date	Same time Last year
Crude oil	.....	.....	217,500	31,071	1,547,431	2,955,275
Fuel oil	.....	.....	170,004	24,283	1,845,308	1,772,236
Diesel and gas oil	152,428	21,775	272,558	38,937	1,019,661	390,858
Gasoline	.....	.....	.....	.....	1,583,291	1,361,463
Tops	.....	.....	.....	.....	.....	149,906
Coastwise—						
Crude oil	623,852	89,122	533,221	76,174	5,843,389	5,348,116
Fuel oil	150,024	21,432	278,863	39,838	2,901,089	1,936,969
Diesel and gas oil	7,139	1,020	.....	.....	53,071	82,854
Gasoline	153,899	21,986	156,296	22,328	1,752,066	1,467,504
Kerosene	4,867	695	.....	.....	40,605	46,499
Tops	.....	.....	.....	.....	.....	127,421
Exports—						
Crude oil	.....	.....	68,566	9,795	727,007	641,498
Fuel oil	315,823	45,118	640,051	91,436	5,683,503	3,747,388
Diesel and gas oil	19,166	2,738	60,861	8,409	163,933	103,899
Gasoline	101,346	14,478	206,677	29,525	403,822	749,628
Kerosene	.....	.....	65,477	9,354	426,632	475,520
TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS						
Diesel and gas oil	.....	.....	.....	.....	251,458	413,059
Gasoline	.....	.....	.....	.....	507,916	267,717
Lubricants	.....	.....	.....	.....	58,110	52,025
Coastwise—						
Fuel oil	120,600	17,229	.....	.....	1,157,857	1,217,751
Diesel and gas oil	.....	.....	.....	.....	134,308	.....
Gasoline	29,450	4,207	184,101	26,300	984,193	841,761
Kerosene	4,788	684	13,753	1,965	30,674	67,068
Exports—						
Fuel oil	.....	.....	.....	.....	295,851	533,274
Gasoline	52,087	7,441	260,076	37,154	910,133	480,629
Kerosene	29,418	4,202	.....	.....	238,722	358,048
Lubricants	.....	.....	.....	.....	9,120	9,093

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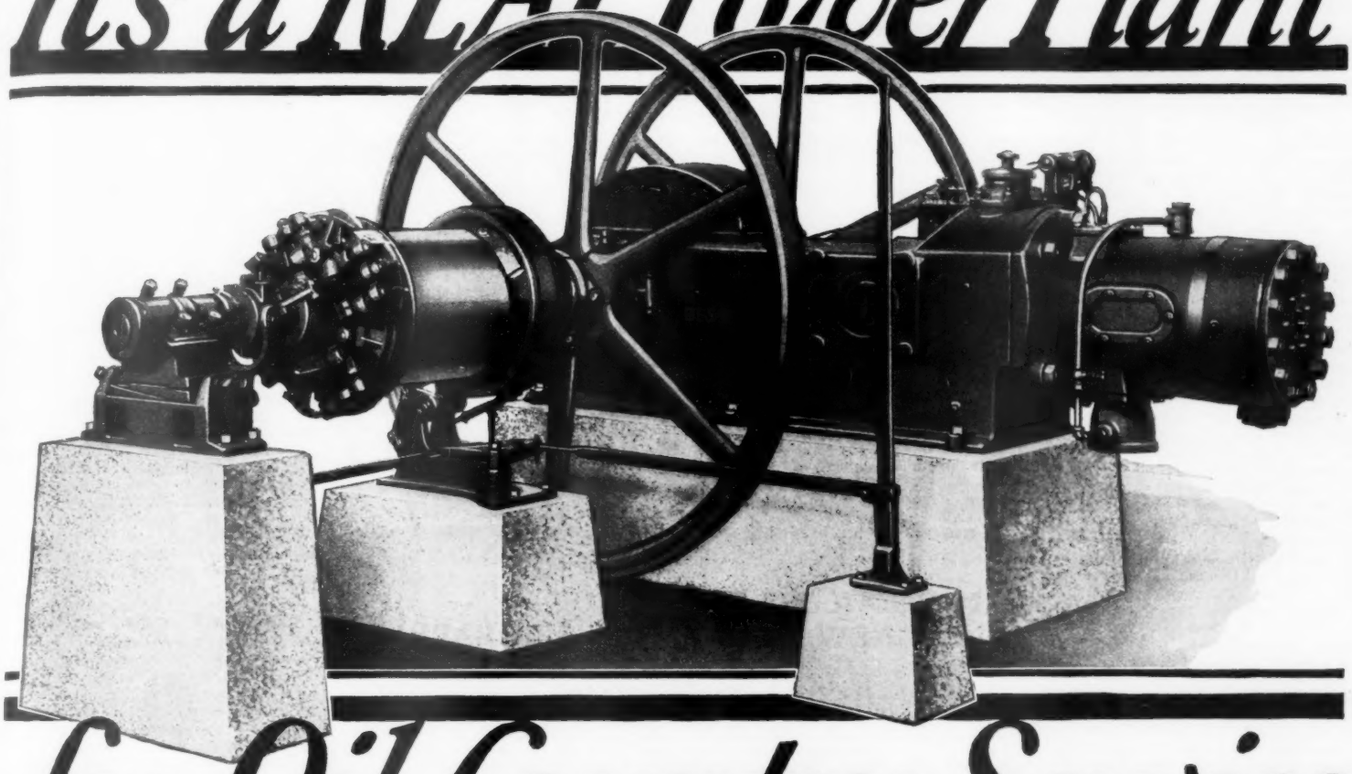

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Saginaw Has 475 Bbl. Deep Sand Well

Producing One-Third of Oil in Field From Saginaw Sand, 500 Feet Below Berea

By Whit
Staff Correspondent, Michigan Fields

SAGINAW, Mich., Mar. 28. — Much excitement prevails in Saginaw over the finding of the largest producer ever drilled in the field, the oil being found in the deep Saginaw sand at around 2,300 feet, about 500 feet below the Berea, which up to this time was the producing sand of the present development. The cause of the flurry is the Sun Oil Co.'s No. 1 on the Ferdinand Stelzreide farm, Section 11, Saginaw Township, and at the north edge of the field. This well failed to show a production of more than a barrel a day, and the company concluded to make a try at the Saginaw sand. Sand was tapped only a few inches on Saturday and later sprayed some oil, making it the first important development since the Berea sand was discovered to be productive here. Taking the company's representatives by surprise and spraying oil above the 64-foot mast, the well brought oil men from all over the field scurrying to the spot.

It is the first time so far as is known that a well in the Saginaw Field has made a natural flow before being shot, for the Sun well had barely entered the pay sand when it began filling up. It was roughly estimated that it was not more than a few inches in the sand. It immediately started to fill up, and within two hours, before a casinghead could be installed, it flowed. A strong north wind blew oil several hundred feet from the well covering fields with a slimy coating. Drilling operations were stopped, and the crew turned all their attention to shutting in the well and providing additional tankage before making any attempt to drill it in, lest any greater drilling into the sand might result in much greater flow.

Flowing at intervals all day, the well continued to show promise that it may be the forerunner of an oil production much greater than that already developed in the Saginaw Field from the Berea sand.

While fully realizing that the well might have tapped an isolated pocket of oil, men familiar with the oil business were inclined to take a more optimistic view. They agreed that the early showing of the well seemed extremely encouraging and that it may be the forerunner of much bigger production that anything heretofore known in the new field.

Sensation of the Field

The sensation of the field when it started about an 80-bbl. flow after it had been drilled only a few inches into the sand, began its heavier flow Monday afternoon when the Sun company men attempted to drill it in farther. On Monday afternoon they waited for the periodical flow then in progress to subside and ran in the too's. But before they had been drilling more than 5 or 10 minutes the well again started to flow, spraying oil through the oil saver, and put a stop to drilling. Since that time the flow of oil and gas has been practically continuous. Sun company officials announced Tuesday that during the 24-hour period from 8 a. m. Monday until 8 a. m. Tuesday the well made 375 bbls. Considering the fact that several hours of this time the well was flowing at its original rate, they found that the new rate of flow was approximately 475 bbls. a day.

Any attempt to drill the well in still farther was abandoned for the time being. Company officials decided to let it continue its flow for the present and await developments before doing any more work on it. Three 100-bbl. tanks are in place to receive its output, and a pump is working most of the time emptying these tanks and transferring the oil to the Sun's gathering system and storage tanks.

How long the present flow will continue and what might be the result of further drilling is arousing lively interest, says the News-Courier. Sun officials believe the well is not more than a foot into the sand, taking into consideration the additional drilling Monday. There is a possibility that additional drilling might develop an even greater flow of oil, they believe.

One-Third of Field's Output

The new well is far and away the largest producer in the field, dwarfing the Berea wells in which production heretofore has been concentrated. In fact, the one well is now producing approximately one-third as much as the whole Berea Field. It may continue large production indefinitely, or, oil men say, it may decline rapidly.

Considerable leasing activity has sprung up since the new well came in, although there is little close-in acreage for the leasers to work on. Most of the acreage close by already is under lease, but a few scattered pieces it was thought might be available were the object of considerable activity.

One question that oil men were considering Tuesday is that of getting the Saginaw oil and at the same time safeguarding Berea production. Though the new Saginaw sand well is far more spectacular than those in the Berea, oil men have no disposition to ignore the pay in the upper formation even if the hopes aroused by the Sun's discovery are justified by further development. Hence methods were being considered for casing and packing wells in order that the oil from one formation might not interfere with that of the other.

Five completions are reported from the Saginaw Field proper. The one making the best showing is the Local Oil Co.'s No. 1 at the foot of State Street, near the right of way of the Pere Marquette Railroad, which tapped the top of the Berea sand at 1,803 feet, was drilled 19 feet in the sand and shot with 80 quarts and is reported to have flowed 50 bbls. the first 12 hours. This well is the closest to be drilled near Genessee Avenue, which has been looked upon as the best looking territory in the pool. The Saginaw Prospecting Co. has a well nearly down to producing depth a short distance closer, but has been shut down for a few days.

The Fordney Petroleum Co.'s No. 1, on the Polin & Madison property, on Clark Street near Eddy Street, tapped the sand at 1,799 feet and went 19 feet in the sand, giving the hole an 80-quart shot, which responded over night by flowing 30 bbls. in tanks.

Schwinch Oil Co.'s second well, on the Swinch Packing House property at the foot of Weiss Street, on North Michigan Avenue, near the Pere Marquette Railroad, tapped the sand at 1,808½ feet and went 16 feet in the sand and given a 60-quart shot, is estimated at 20 bbls.

Edward Bourdow and other' No. 1, on the Bourdow property, at Clark and Fayette Streets, found the sand at 1,812 feet and at 20 feet in the sand, shot with 60 quarts, is said to be good for 20 bbls. or better the first 24 hours.

Saginaw Prospecting Co.'s No. 1, on the George Griebel property along the Shattuck Road west of Hermansau Road, tapped sand at 1,823 feet and went 20 feet in the sand, where an 80-quart shot was exploded, bringing forth a 20-bbl. producer.

Other Developments

The Ohio Oil Co. struck top of sand at 1,809 feet in its No. 4, on the Mershon-Eddy-Parker property and drilled 17 feet in and with a 60-quart shot, looks like an average producer around 20 to 25 bbls.

Wells-Schmidt Co. struck top of sand at 1,805 feet in its No. 3 on the Whittier property, near the Mershon-Whittier Natatorium and will soon be a completion.

Ohio Fuel Corp. is due in with its No. 4 on the Fisher property, Section 10, Saginaw Township, to the northwestern portion of the field.

K. & M. Oil Co. has another that is due for completion, No. 1 on the J. C. Reed property on Reed Street.

The outcome of the deep test being made by the J. & S. Development Co., on Sliva property at Deindorfer and Charles Streets, is being watched with interest. The well had reached the Saginaw sand but was shut down following the breaking of an engine crosshead.

Fordney Petroleum Co. is reported to be drilling a well on the Flack property within defined limits of the field. Superior Oil Co. is drilling No. 1 on the Albert E. Pelkey property, on Reed Street west of Hermansau Street.

A new company known as the West Virginia Oil & Gas Co. has entered the field, and will drill a well on the Bennett & Fisher property, on North Michigan Avenue, near Cronk Street. Fordney Petroleum Co. is drilling No. 1 on the Glen Gardner property on Shaefer Street, near Clark Street.

Gets Supply Store

Opening of a new oil well supply store by the National Supply Co., will be a big help to the Saginaw Field. The store is located at 515 West Genessee Avenue and is in charge of Henry Tschappat. The company will maintain a pipe yard at Franklin and Hayden Streets and already has a stock of pipe stored there.

SIX PRODUCERS IN MEXICO; NEW PRODUCTION 5,350 BARRELS

By George Blardone
Staff Correspondent, Mexican Fields

TAMPICO, Mexico, Mar. 25.—The past week saw nine wells completed in Mexican fields, of which six were producers with new production of, say, 5,350 bbls. The failures totaled three wells. Mexican Sinclair Petroleum Corp., operating in the Cacalilao sector of the northern fields, had the best of the week. Its No. 148, Lot 2, finished for 150 bbls. at 1,864 feet; its No. 153, Lot 3, finished for 1,500 bbls. at 1,575 feet; its No. 176, Lot 2, finished for 500 bbls. at 1,739 feet. International Petroleum Co.'s No. 14-A, Lot 6, Corcovado, finished for 500 bbls. at 695 feet; its No. 15, same lot and sector, finished for 200 bbls. at 1,840 feet. Mexican Petroleum Co.'s (Ebano sector) No. 2 Ebano finished for 2,500 bbls. at 1,920 feet.

The failures follow: William Neinau Co.'s No. 7 W. Maguabes, Panuco sector, is a failure at 2,050 feet, with a 10-bbl. show. Mexican Gulf Oil Co.'s No. 59 Chapacao drilled into salt water at 1,680 feet. Mexican Petroleum Co.'s No. 25 Mendez is a dry hole at 2,205 feet.

Panuco-Cacalilao

Drilling operations, as the week ended, in the Panuco-Cacalilao of the northern fields follow: La Corona Petroleum Co.'s No. 82 San Manuel, Panuco, is in the Tamasopa at 4,116 feet. This is the deep test that is being made in the old Panuco sector; and it is a question of seeing what will result. The Corona's No. 194, Lot 1, Cacalilao, is in gray lime at 1,560 feet; its No. 195, Lot 1, same, cemented 8-inch in gray lime at 1,175 feet. Cia. Pet. Francia Mexico's No. 21, Lot 4, Tanchicuin, is in gray lime with a showing of oil at 1,850 feet; its No. 23, Lot 1, Lomas y Llanos, is ready to spud; its No. 26, Lot 2, E. Maguabes is rigging. East Coast Oil Co.'s No. 234 Halcon is in gray shale at 1,590 feet. International Petroleum Co.'s No. 297, Lot 8, Cacalilao, is in pink shale at 100 feet. Cia. Pet. Chileno Mexicano's No. 42 Delicias is in the San Felipe at 1,415 feet, showing some oil. Mexican Sinclair Petroleum Corp.'s No. 149, Lot 2, Cacalilao, is a big gasser at 1,467 feet in the gray lime. The gas, when encountered, shot the tools out of the hole. Its No. 142, Lot 2, is drilled 1,775 feet in the Tamasopa lime, with salt water shows at 1,690 and 1,707 feet. The hole has filled with oil from 1,730 feet, and it will be tubed and should make a well. Mexican Sinclair's No. 175, Lot 2, Cacalilao, is in white and brown lime at 1,730 feet; its No. 177 is in blue shale at 780 feet, and it has several locations rigging. Mexican Petroleum Co.'s No. 35, Lot 1, Cacalilao, cemented 8-inch in gray lime at 1,330 feet; its No. 40, same, cemented 8-inch in gray lime at 1,315 feet. New England Fuel Oil Co.'s No. 34 Pazzi is in gray lime at 1,534 feet. Transcontinental Petroleum Co.'s No. 34-A Las Delicias is in gray lime at 1,580 feet; its No. 145, Lot 2, Cacalilao, is in the San Felipe at 1,445 feet; and its No. 68 Paciencia cemented 8-inch in the San Felipe at 1,255 feet. The Territorial Co.'s No. 41 Salvasuchi cemented 6-inch in gray lime at 1,120 feet. Vera Cruz Mexican Oil Co.'s No. 11 Buena Vista cemented 8-inch in gray lime at 1,470 feet.

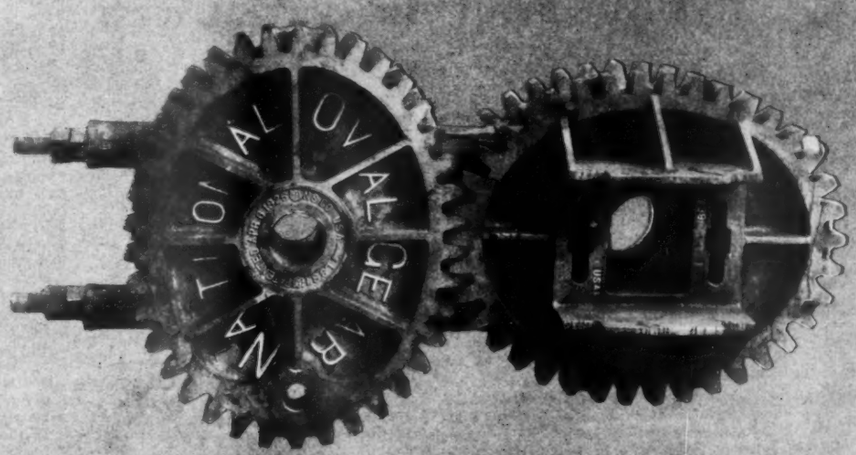
At Ebano

The Ebano district is the lively district of the fields at this writing. Despite the gestures of good will, it remains a fact that the Standard of Indiana subsidiaries (Huasteca Petroleum Co. in the south, Mexican Petroleum Co. in the north) are the only two companies that have permits that permit them to drill on a comprehensive program. Some minor companies are under way, but certain major companies are not.

Consider now Mexican Petroleum Co., in the Ebano sector: Its No. 16 Ebano is cementing 10-inch in hard gray lime at 1,345 feet. Its No. 43 Midway is cementing the same at 1,145 feet in gray lime; its No. 58 is in gray shale at 1,086 feet; its No. 60 is in blue lime with a showing of oil at 1,700 feet; its No. 70 cemented 10-inch in gray lime at 1,240 feet; its No. 26 Mendez is in lime at 1,860 feet; its No. 37 is in gray lime at 1,360 feet; its No. 105 La Dicha has run 8-inch, in gray lime, at 2,180 feet; its Nos. 109 and 113 are cementing 10-inch in gray lime at 1,480 and 1,405 feet respectively. Its No. 130 is running 10-inch in gray lime at 1,335 feet. Its Nos.

(Continued on Page 150)

NATIONAL OVAL GEAR PUMPING ATTACHMENT



THE NATIONAL SUPPLY COMPANIES

Ohio County, Ky., Completes Eight

Total Initial Output 960 Bbls. Celina Field, Clay County, Tennessee, Has 200-Bbl. Well

By Whit

Staff Correspondent. Kentucky-Tennessee

HARTFORD, Ky., Mar. 28.—The feature of the Kentucky Field during the past week comes from the Ohio County end of the western division, where eight new wells show a combined initial production of 960 bbls., the smallest being good for 5 bbls.; and the largest being 200 bbls. initial from the sand found in the Ambrose Pool, several miles to the north of Hartford, the county seat, and some 12 miles south of Whitesville. No. 6 on the John Weller farm is rated at 200 bbls., while Nos. 7, 8 and 9 are reported at 150 bbls. each. No. 5 on the Ambrose heirs 14 acres, same pool, is said to be good for 200 bbls. initial, while in the Collier Pool, same county, and midway between the Ambrose Pool and Pellville, a 75-bbl. Barlow sand well was drilled on the J. S. Colyer 100 acres. Other wells covering 11 counties were either dry or small pumpers. In the Celina Field of Clay County, Tennessee, a 200-bbl. initial producer from about 100 feet below the Pencil Cave formation, No. 2 on the Burton Langford lease, on the Mill Creek structure and a mile west of the discovery well of the new field, was completed, extending the producing area a mile westward and opening up a large area for development.

Week's Work

A summary of the week's work in the Kentucky-Tennessee fields show 26 completions, 22 producers with an initial production of 1,220 bbls., and 4 dry holes. When compared with the previous week there were 18 more completions, 15 more producers, 902 bbls. more production, and 3 more dry holes. The wells were distributed by counties and districts as follows:

County—	Comp.	Oil Wells	Prod.	Dry
Ohio	8	8	960	0
Warren	3	1	5	2
Allen	1	1	2	0
Johnson-Magoffin	6	5	37	1
Estill	2	2	4	0
Wayne	2	1	1	1
Lee-Owsley	1	1	5	0
Lawrence-Johnson	1	1	5	0
Morgan	1	1	1	0
Kentucky	25	21	1,020	4
Tennessee, Clay County	1	1	200	0
Total	26	22	1,220	4
Last week	8	7	318	1
Difference	18	15	902	3

Western Kentucky

A third cut in the price of western Kentucky crude produced in Allen, Warren, Simpson, Ohio, Daviess, Hancock and Hopkins Counties, west of Barren, to a price of $1.33 per barrel does not dampen the ardor of the operators in territory where wells above the average are being found, especially in Ohio County, where the field was getting into its biggest stride by turning out the heaviest production last week since operations in the three counties, as a swing backward and upward is expected as soon as better weather conditions open up and consumption of gasoline increases. Rumors to the effect that pumping of oil in these counties would likely slow down during the prevalence of the low price of $1.33 for crude were discredited by those in a position to know, as the small amount produced in the field is scarcely a drop in the bucket to the big production in the Mid-Continent Field, where two wells will produce more than the entire western Kentucky Field does in a day.

Development work along Panther Creek that passes through the Ohio County area has been delayed to some extent for several days by overflowing water in all the lowlands, but the swift stream is receding fast.

Ohio County Wells

Without the development in Ohio County, the new production of the entire Kentucky Field would look bad during the several days past. In the Ambrose Pool, the big wells are being found; and, in fact, it much resembles the Big Sinking Creek wells of Lee County in that county's rush of the drill a few years ago, when wells far above the average were being brought in. James C. Ellis, a native, struck it rich several months ago when he made his first entrance into the oil business by sinking a test on the east line of the John R. Weller 110 acres, several miles to the north of Hartford, and since then is reported to have brought in his No. 9 on the lease, four of which are new wells. No. 6 is reported showing better than 200 bbls. initial, while Nos. 7, 8 and 9 are reported showing for 150 bbls. natural each. To the north of the east end of the Weller farm, Julius C. Miller's No. 5 on the Ambrose heirs' 14-acre lease is credited with an initial of 200 bbls. To the north of the Weller 110 acres and west of the Ambrose heirs' 14 acres, the Rex-Pyramid Oil Co., has drilled in No. 3 on the H. Scott Ambrose 52-acre farm that is said to show from 40 to 50 bbls. initial and may do better when put on the pump. No. 6 is drilling on the same lease.

The Leeper Oil Co. has made another good strike in No. 6 wells on the J. S. Colyer lease, north of the Midkiff Pool, in the Collier Pool. In this well, casing was set on the top of the sand at 521 feet, the bottom of the sand being drilled through at 545 feet after which a 15-foot pocket was drilled, making a total depth of 560 feet. A 60-quart shot was used and the initial production the first day amounted to 75 bbls. No. 7 is starting.

In the Panther Creek Pool, the Panther Creek Oil Co.'s No. 19 well, 2,000 feet from the north line and 200 from the west line of the R. M. Miller 100 acres, in the north part of Ohio County, a short distance south of Pellville, is credited with an initial of 5 bbls. the first 24 hours.

Warren County

In the Bowling Green Field of Warren County, slight changes are noticeable in development work as almost every string of tools that can be moved over the soft ground is at work. West of Bowling Green in the Davenport Field, along the Barren River, the Wood Oil Co.'s No. 29 on the C. G. Davenport 222-acre farm produced 5 bbls. from the shallow sand at 430 feet.

Three miles south of Bowling Green, John Boyd's No. 4 well, 1,100 feet from the north line and 1,900 from the east line of the Edward L. Covington farm, proved a duster at 375 feet.

Gust New and others drilled a duster in a test 620 feet from the north line and 150 from the west line of the Rafert Wolthall lease, southeast of Bowling Green, at a depth of 272 feet.

Other Developments

In the Gainesville area of the Scottsville Field, and in the northern part of Allen County, the Tracy Supply Co.'s No. 1, on the Rube Osborn farm, has drilled to a total depth of 331 feet, where it had a showing of oil estimated at 2 bbls. and will be given a shot as soon as the roads are passable. Riley Hunt is drilling No. 6 on his own farm, same field. R. H. Stohr is down around 225 feet at No. 12 on the Anthony Welch farm, same field, and Lee Moore is around 100 feet at No. 8 on his No. 2 farm, same field.

The Ohio Oil Co. is getting close to the sand with its test on the F. K. Higdon farm, southwest of the wells on the Roby farm, in Daviess County, and southwest of Pellville.

The Wood Oil Co. is due in the sand with a test on the T. L. Wallace farm, close to the town of Aetnaville, in the eastern part of Ohio County and north of where the Loman-Bolling interests have some production on the Harrison farm, and directly east of the Swope Pool, where some very fine producers were drilled last year by the Chicago Petroleum Syndicate and other companies.

Eastern Division

In the eastern part of Kentucky, 13 completions were reported, mostly small producers, with the Johnson-Magoffin end, known as the South Weir Field, taking the lead. In District 25 of this field, the Reno Oil Co.'s Nos. 10 and 11 Patten Borders farm are reported at 10 bbls. each from the Weir sand. In District 30, George & Touma's No. 9 on the L. D. Holbrook farm is good for 2 bbls. In District 31, the Bed Rock Petroleum Co.'s No. 26 on the J. H. Arnett farm is a 10-bbl. pumper. Model Oil Co.'s No. 2 Sam Hackworth farm is a 5-bbl. pumper, while Oliver Jenkins and others drilled a dry hole in a second test on the Coon Adams farm.

In the North Weir Field of Lawrence-Johnson Counties, S. E. Loman's No. 5 on the W. M. Ross farm, District 32, pumped an initial of 5 bbls.

In Estill County, Irvine Field, District 8, the Superior Oil Co.'s No. 8 on the A. F. West and others property, pumped 3 bbls. initial. Brenner & Adams' No. 5 on the John Sparks is a 1-bbl. pumper from the shallow sand.

In Wayne County, District 3, the Beaver Petroleum Co.'s No. 13 on the Steele heirs farm is a dry hole, and in District 13 W. O. Souther's No. 6 Jones heirs' farm is a 1-bbl. pumper.

In Lee-Owsley Counties, District 35, the Black Gum Oil Co.'s No. 14 on the Gourley-Bodman-McGuire property is a 5-bbl. pumper.

In the Ophir Field, District 30, of Morgan County, Page & Dunham's test on the Joe Cole farm is a 1-bbl. producer.

Tennessee

Another good producer has been added to the Celina Field of Clay County, Tennessee. This new venture is 4 miles south of Celina, in the Mill Creek Pool, which is No. 2 on the west end of the Barlow Langford farm, reported showing for better than 200 bbls. from a sand

(Continued on Page 148)

DEVELOPMENT RETARDED BY RAINS THROUGHOUT THE CENTRAL WEST

By Whit

FINDLAY, Ohio, Mar. 26.—Only 20 completions were reported for the week in the Central West Field, comprising the Lima Field of northwestern Ohio, Central Ohio Field, Indiana and Illinois. Three were dry holes and seven gas wells, the 10 oil wells showing a combined initial production of 318 bbls.

Development work in any of the four divisions is almost out of the question due to heavy rains, especially through the central Ohio and the southern portion of the Lima Field which had several hours' steady rain on Saturday and the Lima, Indiana and Illinois Fields got a downpour on Sunday, filling all streams to their capacity, all lowlands being inundated.

There is to be a revival of work in the old Trenton Rock area of eastern Indiana, especially in the new Berne extension in Jefferson and Blue Creek Townships of Adams County, while much lease work is being done in all parts of the old Trenton Rock portion of the State as much undrilled territory was overlooked during the earlier days. Central Ohio is credited with the best oil wells for the week, found in Hardy, Monroe and Killbuck Townships, of Holmes County. Wells in the Lima Field, Indiana and Illinois were ordinary producers, opening nothing new outside of one north of Tiffin, in Seneca County, in the Lima Field, on the Hunker farm, good for 40 bbls. initially under pump.

Lima Field

The most interesting feature of the old Lima Field of northwestern Ohio for the past several days was the closing of the largest deal in producing properties and pipe lines recorded in the field for many years, when Mack P. Colt, president of the Oko Oil & Gas Co., purchased the entire holdings of the Sun Oil Co., and the Sun Oil Line Co., in five counties, exclusively for himself. The Sun company's big refinery in Toledo is not affected by the sale of these properties, the deal taking producing properties, pipe lines, storage and other field equipment in Wood Hancock, Sandusky, Lucas and Seneca Counties, Ohio.

The oil holdings secured by Mr. Colt comprises all the pipe lines, there being about 300 miles of lines, two 55,000-bbl. storage tanks, a large acreage of leases all thoroughly equipped and in excellent condition, and 300 oil-producing wells, with a production of approximately 100 bbls. daily.

Mr. Colt announced that part of the production will be turned over to the Oko Oil & Gas Co. The pipe lines and remainder of the production will be disposed of and sent to various oil fields east of the Rocky Mountains. This deal, completed by Mr. Colt, does not include any of the holdings of the Sun Oil Co. and the Sun Oil Line Co., outside of the five counties mentioned.

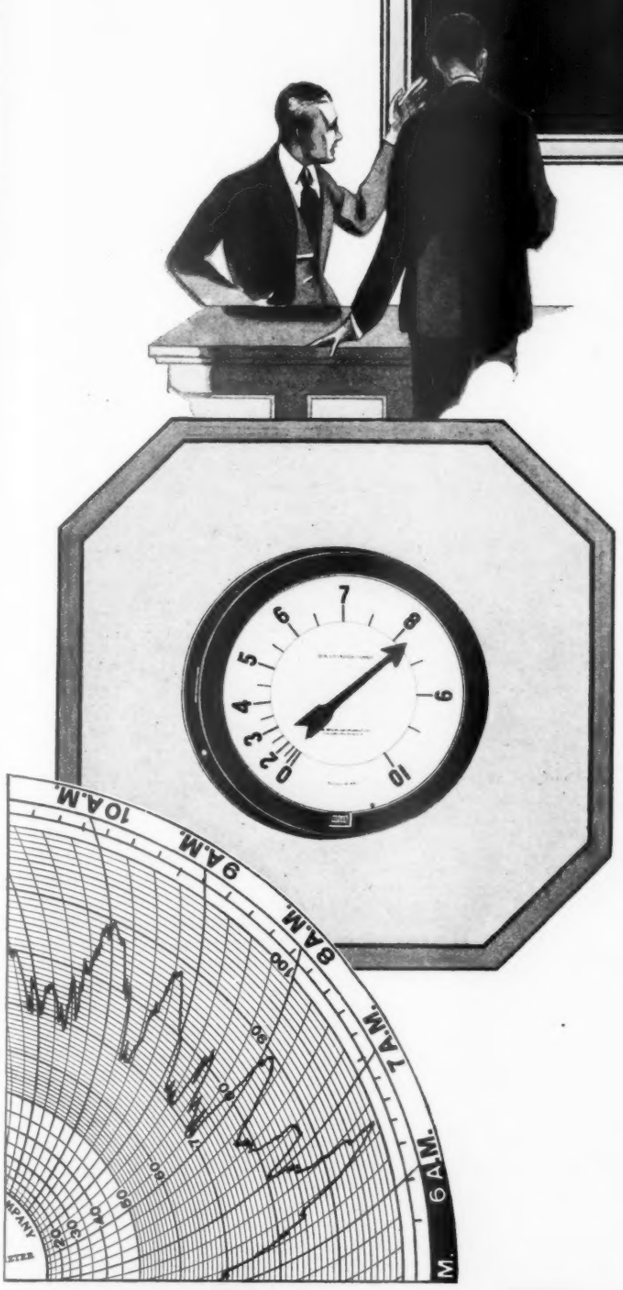
Lima Completions

One of the most important of the late completions in the Lima Field was that made by J. H. Murphy & Son, when they drilled in their No. 2 in the southwest corner of the Dave Hunker farm, mapped as the H. Tucker farm, in the SW, Section 21, Liberty Township, Seneca County, and north of Tiffin. Top of Trenton in this well was found at 1,369 feet and drilled 150 feet in the sand to a total depth of 1,519 feet, the well showing a first 24 hours' gauge a production of 40 bbls. The finding of this well may bring about a renewal of drilling operations near Cromer, the nearest town to the well.

In the Elmore Field, in Harris Township, Ottawa County, Onsel Brothers and others' No. 8, on the Frank Dischinger farm, Section 19, and south of Elmore, pumped 11 bbls. initial production, while the Sugar Creek Oil Co.'s No. 2, on the D. Nellis farm, same section, pumped but 3 bbls. In Danbury Township, same county and the most easterly township of the county, near Sandusky Bay and southeast of the development on Catawba

(Continued on Page 148)

5% FUEL SAVING *by* SIMPLY BALANCING BOILER LOAD



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On this item alone a flow meter on each boiler would pay for itself twice over in a single year.

Brown Electric Flow Meters add to this general flow meter economy the exclusive advantages derived from the *inductance bridge* principle—and the big feature of the Brown Automatic Recording Planimeter, which enables users of Brown Electric Recording Flow Meters to read the AMOUNT of steam generated for any period on the same chart with the record of rate of flow. No need to keep a log of steam output. The Brown Flow Meter does this *automatically*. No other flow meter has this feature.

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MEN KNOWN IN OILDOM

George C. Gester

George C. Gester, who was just elected president of the American Association of Petroleum Geologists, was born in Buffalo, N. Y., in 1884 and early in life moved to California.

His present honor comes after years spent in petroleum geology covering a broad experience obtained in the Rocky Mountain, Pacific Coast and Texas fields of the United States, and several years in Mexico and South America.

Under the administration of Mr. Gester, the geological department of the Standard Oil Company of California has a force of 75 employes and this has grown from a mere handful which comprised the department when Mr. Gester became chief geologist.

Mr. Gester has been identified with the geological departments of the oil division of the Southern Pacific Railroad, Standard Oil Company of New York, and for 10 years he has been chief geologist of the Standard Oil Company of California.

PERSONAL PARAGRAPHS

D. R. Semmes is returning to Cisco, Tex., from a visit to Colombia.

* * *

E. L. DeGolyer, president of the Amerada Corporation, is in London.

* * *

H. H. Henderson, of San Angelo, Tex., has joined the Tidal Oil Company's staff.

* * *

Roy Stevenson is back from San Antonio, Tex., from a trip through west Texas.

* * *

S. W. Benninger, an oil producer of Wichita Falls, has been visiting the Texas Panhandle Field.

* * *

W. C. McDuffie, in charge of all production development for the Shell Company, is in Borneo.

* * *

F. R. Kenney, president of the Marland Oil Company of California, has been in the East on business.

* * *

R. E. Sinclair has been transferred to Garber, Okla., to be superintendent of the Roxana Corporation.

* * *

Bill Hovis of the Gardner Governor Company Mid-Continent sales force has been a Tulsa visitor recently.

* * *

H. B. Burlow, of Templeton, Kenly & Company, Chicago, manufacturers of Simplex jacks, has sailed from New York for Venezuela, and expects to be in the Maracaibo district for several weeks.

E. L. Doheny, who has been critically ill for the past several weeks, is reported to be very much improved.

* * *

T. J. Ahern, of Wichita Falls, Tex., has taken a position in the offices of William F. Morgan, San Antonio, Tex.

* * *

Grover C. Potter, formerly with the Tidal Oil Company, is now chief geologist for the McMan Oil Company.

* * *

E. H. Moore president of the Independent Oil & Gas Company has returned to Tulsa after a trip to New York.

* * *

T. R. Goble, head of the Skelly Oil Company, who has been in the Texas Panhandle Field, has returned to Tulsa.

* * *

Mr. and Mrs. Cecil Swick, who have been in the Peruvian fields for the past three years, returned to Wainwright, Alberta.

* * *

Harry L. Nolan sales manager of the Continental Supply Company is back in St. Louis after a trip through the Texas fields.

* * *

Francis Johns, formerly at Fort Worth, has been made division manager in the Texas Panhandle for the Continental Supply Company.

* * *

G. H. Ackerman, secretary-treasurer of James B. Berry's Sons Company of Chicago, visited offices of north Louisiana refiners recently.

* * *

Frank and Harry Smith, who have been drilling in the Saginaw Field, have left for Colombia to drill for the Tropical Oil Company.

* * *

M. C. McGowen, of Shreveport, La., vice president of the Palmer Corporation, has returned to his office after a short business trip East.

* * *

Victor J. Hendrickson, formerly with the Midwest Refining Company, is now with the California Petroleum Corporation at Sunburst, Mont.

* * *

Erle R. Halliburton, of the Halliburton Oil Well Cementing Company, Duncan, Okla., recently visited Shreveport, La., offices of his company.

* * *

E. B. Hutson, paleontologist, formerly with the Humble Oil & Refining Company at Shreveport, La., has joined the Standard Oil Company of Louisiana.

* * *

E. H. Adderton, field superintendent of the Producers & Refiners Corporation, was a business visitor in Casper, Wyo., from his home in Parco, Wyo.

* * *

R. A. Broomfield, vice president of the Barnsdall Oil Corporation of California, has just returned to Los Angeles following a business trip to New York.

* * *

Announcement has been made of the engagement of W. W. Trout of the Lufkin Foundry and Machine Company to Miss Sophia Mosley of Duncan, Okla.

* * *

William Gholson, formerly superintendent of the Roxana Petroleum Corporation at Garber, is now at Braman, Okla., as superintendent of the Comar Oil Company.

* * *

S. W. Sinsheimer and R. H. Lacey were recently re-elected president and vice president respectively of the Holly Development Company, Huntington Beach, Calif.

* * *

George C. Priestley of Philadelphia, Pa., one of the pioneer operators of Oklahoma has been spending a few days in Tulsa on business. He formerly lived at Bartlesville, Okla.

* * *

Niles Winter, division geologist for the Atlantic Oil Producing Company at Shreveport, La., has gone to West Texas for the company and will be succeeded by E. H. Finch.

* * *

N. Fineston, of the Widdell Engineering Company, has arrived in Shreveport, La., where he will be located temporarily during the construction of some of his company's equipment at the Crystal Oil Refining Corporation's plant here.

C. R. Boling, head of the land department of the Marland Oil Company at Amarillo, Tex. has recovered from an attack of influenza that kept him at home for several days.

* * *

Senor P. Sanchez Navarro, of Gilliam Brothers, independent operators in Mexico, is in San Antonio, Tex., and will devote his time to operations for the Gilliams in Texas.

* * *

A. A. Burrell, of Dallas, Tex., southwestern district manager of the C. & G. Cooper Company of Mount Vernon, Ohio, was in north Louisiana and Arkansas fields on business.

* * *

W. A. Tipton, district sales manager of the Durabla Manufacturing Company of Dallas, Tex., has been visiting the trade in the Arkansas and north Louisiana fields the past week.

* * *

F. W. Tappolet, geologist for the Sun Oil Company in the San Antonio, Tex., territory, has resigned and accepted a position with the Royal Dutch-Shell Company in Mexico.

* * *

Chester W. Washburne, geologist, has returned to New York after two years' exploration in New Zealand and Australia. He has moved his offices to 27 William Street, New York City.

* * *

W. E. Allen, purchasing agent; T. G. Price of the automotive department, and Ralph Risser, of the construction department of the Roxana Petroleum Corporation, were visitors in Amarillo, Tex.

* * *

D. R. Thompson, formerly with the geological department of the McKeon Oil Company, is now affiliated in a similar capacity with the Richfield Oil Company with offices at Los Angeles, Calif.

* * *

F. C. Van Cleave, of Shreveport, La., superintendent of pipe lines for the Gulf Refining Company in the north Louisiana-Arkansas division, has been in a sanitarium for several days. He now has returned to his office.

* * *

L. A. Nordan, who has been in charge of the offices of William F. Morgan in San Antonio, Tex., has been transferred to the field department and has been placed in charge of Morgan interests in the Refugio gas field.

* * *

Lamar S. Perregoy, vice president and general manager, and Martin A. Fladoes, sales manager, of the Sivyer Steel Casting Company, Milwaukee, Wis., are spending three weeks in the Mid-Continent looking over business conditions.

* * *

W. F. Chisholm, director of the mineral division of the Louisiana Conservation Commission with offices at Shreveport, La., attended the second annual industrial conference of the American Mining Congress at Birmingham, Ala.

* * *

Harry M. Sample, president of the National Oil Scouts Association of America, was in San Antonio, Tex., recently. He recently resigned from the Marland Oil Company to accept a position with the Vacuum Oil Company and is now stationed at Eastland, Tex.

* * *

J. W. Weir, superintendent of the California Petroleum Corporation's Ventura refinery, at Fillmore in Ventura County, has severed his connection with that company and will devote his time in the future toward perfection of a number of patents held by him.

* * *

Dr. Alfred Eisenstein of Vienna, Austria, and H. B. Jespersen, of Copenhagen, Denmark, are spending a few weeks with Arthur D. Little, Inc., of Cambridge, Mass., with whom they are associated as European correspondents and consultants.

* * *

Some decision is expected regarding the Utah development and the future action of the Midwest Refining Company in regard to it, from the tour of the Utah country by T. A. Dines, chairman of the board, John D. Clark, president of the company, H. G. Naylor and H. C. Bretschnieder vice presidents.

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EQUIPMENT AND SUPPLIES

BULLETINS DESCRIBE NEW OIL FIELD UNITS

The Climax Engineering Co., Clinton, Iowa, has just issued a series of five bulletins, describing its line of oil-field power units.

Bulletin H describes the Climax Paymaster power for cable tool drilling. This comprises a large six-cylinder drilling engine and reverse clutch, belt connected in the usual manner.

Bulletin L covers four models of Climax reduction units. An insert covers the application of these reduction units to mud pumps. The Climax 3½ : 1 reduction gear is applied to Model "TU," "R4U," and "R6U." It was designed by Climax engineering staff.

Bulletin M describes the Climax Oil Sure power for pumping with gear units. The Oil Sure line comprises three models of Climax power units, especially equipped to drive gear units for pumping.

Another of the series of bulletins is N, describing the Climax Easy-Flow power for driving compressors. Two models are ideally adapted for this purpose.

The fifth bulletin describes the Climax-Economy power for driving rotary rigs. This power consists of two Climax drilling engines, one for driving draw works through a Climax reverse clutch, the other for driving mud pump.

The Climax line of oil-field power units are handled through the National Supply Co., which is the exclusive oil-field distributor. Copies of the bulletins may be obtained either through the National Supply Co. or the Climax Engineering Co.

LINCOLN ELECTRIC CO. CHANGES IN PERSONNEL

The Lincoln Electric Co. announces the following changes in sales personnel:

G. N. Bull, formerly with the Worthington Pump & Machinery Co. in its Washington, D. C., office, has been made district manager of the New York office of the Lincoln Electric Co. C. S. Freeman, formerly in charge of the Lancaster office, has been transferred to the Buffalo office and made district manager. S. W. Schultz, formerly of the Philadelphia office, has been put in charge of the Lancaster office. Ed J. Pfister, formerly of the Buffalo office, has been transferred to the Philadelphia office.

APPOINTED SALES MANAGER

Bert Cleveland, who has been associated with Regan Forge & Engineering Co. as sales manager of the California division for some time, has been advanced to the position of general sales manager for the entire organization. Under his direction, the sales of the Regan organization have been making rapid strides, and the new position has been awarded to Mr. Cleveland for his success in expanding the company's business. He was formerly connected with the National Supply Co.

TO SELL IN PITTSBURGH

The Brown Instrument Co., Philadelphia, Pa., has appointed L. C. Wilson to handle sales and engineering service in connection with the distribution of the new Brown electric flow meter in Pittsburgh territory. Mr. Wilson is well versed in flow meter applications, having received special technical training in fluid flow and measurement under Professor Gebhardt, at Armour Institute, plus 12 years' practical experience in the instrument field. During this period Mr. Wilson was actively engaged in sales and engineering work, chiefly associated with flow meters.

NEW MANUFACTURING BUILDING OF W-K-M

To facilitate handling the growing volume of demand for its oil field and pipe line tools and equipment, the W-K-M Co., Inc., Houston, Tex., has recently completed several new shop buildings. A third warehouse building, measuring 83 feet by 124 feet, now under construction, will give the company a solid block

of manufacturing, assembly and warehouse buildings. The company has gained distinction as manufacturer of several unique tools and machines such as the W-K-M pipe cleaning machine, designed to clean the outside of either single joints or pipe, or made up and loaded pipe lines. W-K-M rotary slips have also gained considerable prestige. Other W-K-M products include oil field winches, tubing slips, standing valves, tubing catchers, swabs, core drills, portable hydraulic pipe straightener, derrick cable tighteners, polished rod rotors, tank gaugers. For pipe line use the company manufactures the following lines of equipment: Pipe-laying and lifting machines, side winch backfilling machines, bulldozer backfilling equipment and pipe cleaning machines.

Officers of the company are Fred McManis, president; L. O. Koen, vice president, and D. J. Bryant, secretary and treasurer.

MANUFACTURE OF PUMPS AND PUMPING EQUIPMENT

The establishments engaged primarily in the manufacture of pumps and pumping equipment reported for 1925 a total output valued at $120,148,157, an increase of 29.3 per cent compared with $92,930,056 for 1923, the last preceding census year.

The numbers and values of the principal classes of pumps manufactured follow: Hand air pumps, 5,249,234, valued at $2,162,579; hand oil pumps, valued at $1,701,064; hand and windmill water pumps, 859,736, valued at $3,664,197; residence water supply units, 103,777, valued at $9,818,090; gasoline filling station pumps (power and hand), valued at $33,481,893; hand spray pumps, 247,764, valued at $1,753,136; power spray pumps, 13,766, valued at $2,143,483; reciprocating steam pumps, valued at $6,449,899; centrifugal pumps, valued at $15,712,475; rotary power pumps, valued at $2,731,893; power-driven air pumps, valued at $729,224; and other power pumps, valued at $12,766,206. (The manufacturers did not in all cases report the number of pumps made.)

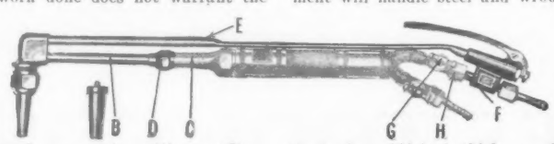
Of the 253 establishments reporting for 1925, 44 were located in California, 30 in Ohio, 25 in Illinois, 25 in New York, 20 in Indiana, 16 in Michigan, 13 in Pennsylvania, 12 in Massachusetts, 10 in Missouri, 9 in Wisconsin, 8 in Minnesota, 7 in Iowa, 6 in New Jersey, 3 in Washington, 2 each in Connecticut, Kansas, Louisiana, Maryland, Nebraska, Oklahoma, Oregon, Tennessee and Texas, and 1 each in Delaware, Georgia, Kentucky, North Carolina, South Carolina, Vermont and Virginia.

VISITING WYOMING

Clyde Ellwood, general sales manager of the Axelson Machine Co., has been in the Wyoming territory for two weeks, making a survey of conditions. En route to the northern fields, he stopped at San Francisco.

CUTTING ATTACHMENT FOR WELDING BLOWPIPE

For users of Prest-O-Weld oxy-acetylene welding equipment who wish to do a limited amount of metal cutting, the Oxweld Acetylene Co., 30 East Forty-second Street, New York City, has recently added to its line the CW-101 cutting attachment for its W-101 welding blowpipe. It is intended to handle occasional rather than regular cutting work, especially when the amount and nature of the work done does not warrant the purchase of a separate cutting outfit.



Connecting and disconnecting the attachment, it is reported, has been made extremely simple, so that it can be done with great rapidity and ease. To connect it to the W-101 welding blowpipe, the stem and nut assembly is first removed from the blowpipe. The short tube (B) of the attachment is then inserted into the mixer tube (C). The stem nut (D) is not tightened until later. The long tube (E) is next held along the right-hand side of the handle, and the union nipple (F) is sprung into the rear of the oxygen valve body (G). The long tube is swung to the top of the handle, and the connection nut (H) is screwed on and tightened.

Fitted with two nozzles, this attachment will handle steel and wrought iron up to 1 or 1½-inch thickness. The oxygen pressures required for the CW-101 cutting attachment are practically the same as those for the Prest-O-Weld cutting table for C-101 cutting blowpipes. A table of pressure included in the instruction pamphlet furnished with the attachment simplifies the operator's work.

EXHIBIT OF TRACYFIER AT THE CHICAGO SHOW

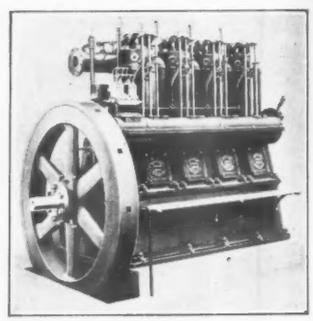
Water splashing madly about inside a brilliantly illuminated 42-inch boiler drum was seen through a 1-inch-thick plate glass end at the Chicago Power Show. Air was blown upward through the water to imitate the action of steam entering a boiler drum violently from the circulating tubes. The air carried drops and gobs of the surface water clear to the top of the drum, just as the steam does in a boiler at high rating. Along the inside top of the drum, just below and connected to the steam nozzle, was a Tracyfier, which, the manufacturers report, purified the air by removing every last drop of water the same as it purifies steam. The clean dry air was ejected upward through the steam nozzle — the water removed from the air was carried away through a drain pipe at the bottom of the Tracyfier and thence outside the drum.

There were also shown Tracyfiers in various stages of disassembly, so visiting engineers received a complete knowledge of the Tracyfier's construction. Bulletins were distributed stating money-saving advantages of using standard specification steam.

MARKETING NEW LINE OF DIESEL ENGINES

The Chicago Pneumatic Tool Co. is now marketing a new line of MWM Benz Diesel engines from 80 to 240 horsepower at 327 r. p. m.

In presenting this high-compression

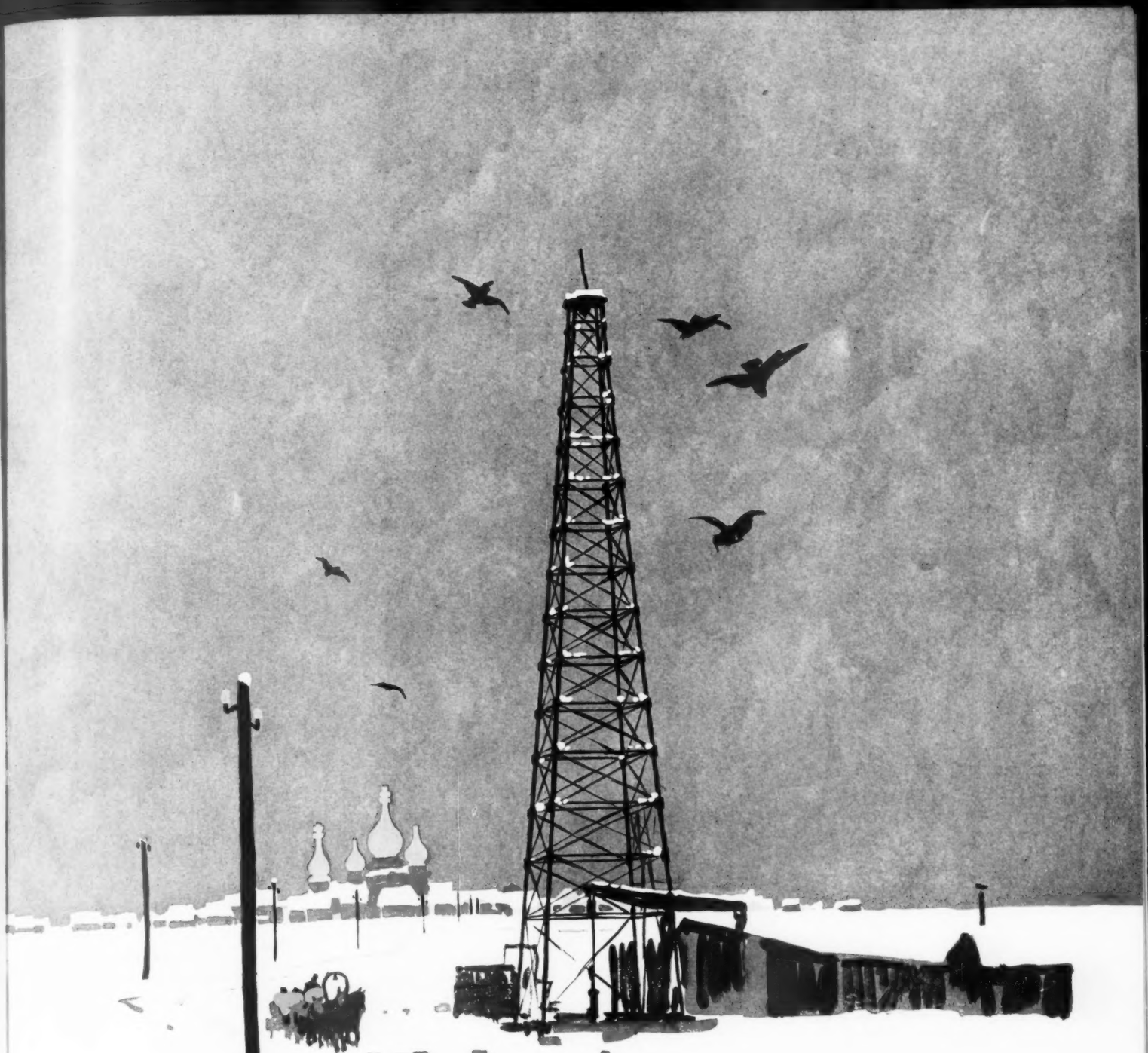


Diesel engine to the trade, an exceptionally fortunate combination of resources is brought into play. It is generally accepted that German engineers have led in the development of the design of engines of the Diesel type—American engineers have led in mass production of machinery; such a combination was effected when the rights for manufacturing the Motoren Wereke Manheim Benz solid-injection Diesel engine were acquired by the Chicago Pneumatic Tool Co.

There are said to be many constructional and operating features of outstanding merit which space will not permit describing. Full and complete specifications are available by addressing the Chicago Pneumatic Tool Co., 6 East Forty-fourth Street, New York City, or any of its branches or dealers.

NEW TYPE OF PUMPS

Novo offers new "Flud Oild" enclosed, self-oiling, one, two and three-cylinder piston pumps. The new Novo single-cylinder, enclosed piston pump is a double-acting, inside-packed pump, powered with Novo one and two-cylinder gasoline engines, or electric motors. All working parts, gears, pinions, bearings and crossheads are automatically lubricated and run in a bath of oil.



AMoore

TUBULAR STEEL DERRICKS IN RUSSIA

WORLD WIDE SERVICE FOR TWENTY YEARS

In RUSSIA

Where bleak snowfields stretch away endlessly and mighty storm devils battle to protect the oil treasures of mother earth, Moore Tubular Steel Derricks give unfailing service.

Their tubular strength with attendant light weight, their simplicity of construction and the ease of their transportation are indeed essential in such a land of great distances and uncertain labor supply.

Moore engineering skill and manufacturing excellence have done much to lessen drilling hazards the world over.

Moore
TUBULAR STEEL DERRICKS

LEE C. MOORE & COMPANY, INC. PITTSBURGH · TULSA

Established 1907

Dallas, Texas · Houston, Texas · Wichita Falls, Texas · Isom, Texas · Parkersburg, W. Va.
Casper, Wyo. · Shreveport, La. · El Dorado, Kan. · El Dorado, Ark.

EQUIPMENT AND SUPPLIES

NEW TURBO-GENERATOR FOR ISOLATED PLANTS

A new 2½-kilowatt, heavy duty, portable turbo-generator, which is completely self-contained, so that it requires no switchboards, fuse panels or rheostats and which has been designed automatically to maintain voltages with extreme accuracy despite wide variations of steam pressure, is a new development of the Pyle-National Co. of Chicago. The new unit, which is known as type M-2-S, is designed to operate on compressed air, and is suitable for used under the most adverse conditions in furnishing light or current for portable tools in oil fields, construction work and isolated stations where generating equipment must be easily portable, extremely rugged and yet at the same time able to deliver constant, automatically regulated current.

The new large capacity permits the unit to handle a continuous load of sixty 40-watt lamps or twenty 500-watt lamps or any combination having a demand of 2½-kilowatts. If, as is becoming increasingly common on construction work, it is desired to make use of flood light illumination the unit will handle a pair of 500-watt flood lamps, with an additional string of fifteen 100-watt lamps. On all flood light illumination it will handle five large flood lamps continuously with ease.

Since uniform steam pressures are not likely to be encountered on work which calls for this type of current generating machinery the designers have gone to great pains to perfect an automatic regulating mechanism which will maintain uniform voltage under extreme fluctuations of steam pressure or load. The new control will hold voltages constant to within three volts of normal even though the steam pressures vary all the way from 80 pounds to 200 pounds.

WELDER INSTRUCTION MANUAL

The Lincoln Electric Co. of Cleveland, Ohio, has just issued the 1927 edition of the "Instruction Manual." This publication, which is revised annually to cover the latest practices used in manual electric arc welding, is of interest to practically everyone who uses arc welding. Among the subjects treated are: high speed steel welding, high pressure pipe welding, automobile frames, boiler repairs, welding cast iron, manganese steel welding, carbon arc welding, manufacture of machinery and equipment using welded steel in place of castings.

NEW TAGLIABUE MANUAL

The C. J. Tagliabue Manufacturing Co. of Brooklyn, N. Y., has just published the twentieth revised edition of the New and Revised Oil Manual for Inspectors of Petroleum. This edition has been brought up to date and includes the A. P. I. gravity temperature correction tables, as revised and adopted by the United States Bureau of Standards, the United States Bureau of Mines, and the American Petroleum Institute. Besides these new and official tables, the manual includes 13 other tables and detailed procedure for conducting 32 routine oil tests. The manual contains 120 printed pages with 8 blank pages to be used as memorandum data sheets.

NEW TYPE RETURN BEND

A new bulletin has been published by the Ohio Steel Foundry Co. of Springfield, Ohio, which illustrates and describes a new type of return bend for use in pipe stills and cracking units. The bulletin introduces a new type of closure called "Ohiolock," which simplifies the old method of shutdowns for cleaning out the tubes.

MILLS OVERSUPPLIED WITH PIPE BUSINESS; OTHER CLASSES DULL

By B. E. V. Luty

PITTSBURGH, Pa., Mar. 28.—The pipe mill situation in general is that the mills are oversupplied with line pipe business and undersupplied in other classes of business. Since last October there has been heavy buying of line pipe at intervals, chiefly for gas lines. The latest line pipe order reported is that for the Rio Grande line, to be built by the Hope Engineering & Supply Co., 160 miles of 12¾-inch plain-end pipe, amounting to about 100,000 gross tons. The understanding in the trade is that the Youngstown Sheet & Tube Co. received the entire order, which involves delivery over a period of months. A few weeks ago it was understood that the leading interest was out of the market on line pipe above 10-inch.

Demand for casing and other well-drilling material has not opened up to the extent expected, or to the extent usual at this time of year, the situation recently developed as to oil production and oil prices being presumably the reason, although it may be noted that there was no absolutely sound basis for the expectation of pipe mills late last year that this year would be as good as last in the matter of demand for tubular goods. Last year was quite an exceptional year and a repetition would therefore be exceptional also.

Lap Weld Running Full

Lap-weld furnaces making the largest sizes are running absolutely full, under pressure, to get out the maximum tonnage possible. Other lap-weld furnaces are nearly all running, nominally full, but not under so much pressure. Production of butt weld is probably at about one-third of capacity. Some trade estimates put the total operation of the pipe industry at as high as 85 per cent, but in other quarters 75 per cent is considered nearer the mark. Capacity is so much greater than in 1923 that it takes much more tonnage to produce the same percentage rate of operation. It will be remembered that 1923 was an exceptionally active year, last year no doubt passing it by a wide margin, but the official statistics of last year's production are not yet available.

Mill prices on tubular goods are understood to be firm all along the line.

As to the steel industry in general, it is now at a crucial point in the year, for the experience of the past three years has shown March to be the highest month for mill operations, there being a seasonal swing, with operations declining to July and then increasing thereafter. Thus according to precedent, mill operations would now be at their highest point, with decreases next in order, but in some quarters it is argued that buyers have been so conservative all along the line that the peak of demand for spring requirements will come somewhat later this year than formerly.

There is, however, no tangible evidence that mill operations are going to increase further. Rather there are some little points that would indicate the contrary. Tin-plate production has already begun decreasing, production being now at fully 5 per cent under the recent peak.

Freight Car Order

The Southern Pacific has ordered 1,200 freight cars, making the total freight cars purchased since January 1 slightly over 25,000 cars, or three-eighths as many as were bought in the whole of last year.

Lettings of fabricated structural steel jobs were 171,720 net tons in January and 219,420 net tons in February, thus running a few per cent above those in the same months in 1926 and 1925.

The automobile industry is now running very well after its very light operation in December, and the year's total production may possibly be only a few per cent under that of last year.

Finished steel prices have been steady for a month, showing no further softening at any point, also no substantial advance in any direction.

Rivet makers have put out a new base price, 2.75 cents, against the old market of 2.30 cents to 2.35 cents, with a new list of extras, reducing many extras but putting some sizes formerly base at extras. The new prices are still to be tested.

The coal strike promises to be somewhat less extensive than was expected a few weeks ago. Coke remains dull.

Basic pig iron at valley furnaces is up 50 cents to $18.50.

NEW INSTRUMENT CATALOG

A complete line of indicating, recording, signalling and controling pressure gauges, manufactured by the Brown Instrument Co., Philadelphia, Pa., is featured in a new catalog, No. 75, just issued by that company. This catalog is a revision of a former edition, and features all types of round case instruments, and in addition, single-record, duplex-record, multiple-record, and multiple-duplex-record models of strip-chart pressure recorders. In addition to pressure and vacuum gauges the catalog includes descriptions and illustrations of Brown draft gauges. A thoroughly revised chart list, including strip-charts, is presented. These catalogs are now being received in quantity from the printer, and copies will be sent to responsible industrial executives on request.

MADE TULSA REPRESENTATIVE

Allan L. Hasse, well known engineer and specialty man of Tulsa, has been appointed sales representative in the Tulsa territory for the Texas Electric Steel sucker rod, according to an announcement made by H. P. Bostaph, sales manager for the Texas Steel Co. of Fort Worth, Tex., manufacturers of the sucker rod. Mr. Bostaph just returned from a trip to Tulsa where arrangements for the new representative were made. Mr. Hasse will assume charge of sales activities in Oklahoma immediately.

CLOSES DENVER OFFICE

The Frick-Reid Supply Co. announces the closing of its Denver, Colo., office, effective April 1, and the concentration of its forces at Casper, Wyo., where a large and diversified stock of oil country supplies is carried. Business at that point is in charge of C. R. McVay, local store manager. C. E. Dowd, district manager of the Rocky Mountain division, is being transferred to Houston, Tex., and will be in charge of that district and will be located at Houston after May 1.

NEW ORLEANS OFFICE

Expansion of business has necessitated the opening of an additional district office by Merco Nordstrom Valve Co. Offices are being opened in New Orleans, La., at 1501 Masonic Temple. The Houston, Tex., office has been removed to 1315 Petroleum Building.

H. A. GEHRES ELECTED COOPER CO. DIRECTOR

H. A. Gehres, chief engineer of the C. & G. Cooper Co., was elected a director of the company at the annual stock-

H. A. Gehres

holders' meeting held at the home office at Mount Vernon, Ohio.

Mr. Gehres is a graduate of the engineering college at Ohio State University of the class of 1907. He has had a wide and successful engineering experience, most of which has been as designer of internal combustion engines.

After spending a year with the Indiana Steel Co., he went to Bethlehem Steel where he had experience in its gas engine department. He joined the Cooper organization in 1910 when Martin Thiel was in charge of engineering. At Mr. Thiel's death in 1920, Mr. Gehres was made chief engineer. He has not only carried through to successful completion many of the designs which Mr. Thiel had already started but he has developed new sizes of gas and oil engines. He also pioneered and successfully demonstrated the removable liner construction for compressor cylinders.

OPENS FORT WORTH WAREHOUSE

W. C. Norris, manufacturer of oil well supplies, has opened a warehouse at 300 North Houston Street, Fort Worth, Tex., where a complete stock of the Norris quality line will be available for Texas customers.

J. W. Emery has ben appointed manager of the Fort Worth warehouse. A Texan himself, and thoroughly familiar with the Norris line, Mr. Emery is peculiarly qualified for this position.

NEW YORK OFFICH

Announcement has been made by C. F. Braun & Co., manufacturing mechanical engineers, Alhambra, Calif., of the opening of a sales and engineering office in the French Building, 551 Fifth Avenue, New York City. William D. Moorer, formerly manager of the Tulsa office has been appointed district manager. Other branch offices are now maintained at Tulsa, Okla., and Dallas, Tex.

JARECKI'S LATEST STORE

The Jarecki Manufacturing Co. has opened a new store at Trent, Taylor County, Texas. Harry B. Cookston is in charge.

Natural Gas Developments

BILL TO EXPORT GAS PASSES LEGISLATURE

OKLAHOMA CITY, Mar. 28.—Senator U. T. Rexroat's bill repealing the law forbidding the piping of natural gas out of the State was passed in the closing hours of the legislature.

Natural gas has been continuously piped out of the State for years. Gov. C. N. Haskell in the first legislature had a bill passed forbidding the exportation of gas. The argument was that this gas should be kept within the State to encourage industry to locate here, and to guarantee cheap fuel.

When the law was enacted, the Kansas Natural Gas Co. had been piping gas from Indian Territory for years. It went into the federal court and won. The Oklahoma law was therefore considered a dead letter, and no attempt was made to enforce it until Col. R. A. Sneed became secretary of state.

In view of the fact that the law was still on the statute books, refusing a charter to any company formed to export gas, Sneed refused to grant a charter to the Industrial Fuel Co., on advice of the attorney general. The case was carried to the State Supreme Court, which upheld Sneed and Atty.-Gen. George F. Short.

The court argued that the United States Supreme Court in the Kansas Natural case had based its opinion on the fact that Oklahoma by state law had attempted to prevent an existing chartered company from continuing its business of transporting natural gas between states, and that this constituted interference with interstate commerce. But, the court held, the State has an undoubted right to fix the terms upon which it will grant charters to domestic corporations, and also to define the terms upon which foreign corporations may do business within the State.

The effect of this decision was that, though the Kansas Natural and the other two companies holding charters issued prior to statehood, could not be interfered with; the State could forbid others to export gas.

In December, 1926, the Magnolia Gas Co. sought to have this opinion set aside, arguing before J. Berry King, assistant attorney-general, that he instruct Sneed to issue a charter to it without the restruction against piping out gas. But King held to the former opinion of the attorney-general and of the Supreme Court, and Graves Leeper, who had become secretary of state before the opinion was rendered, accepted it as binding.

Senator Rexroat then introduced his bill to repeal the law. His argument was that from 1907 to 1925 no effort was made to prevent the exportation of gas, and many other companies than the three original ones are now doing so. He claimed it works a great injustice upon producers, in that some sections are permitted to export gas, while others are forbidden to do so, and thus are denied, for a time being, a market.

GAS FOR TEXAS CITIES

SAN ANTONIO, Tex., Mar. 26.—Gonzales, county seat of Gonzales County, and Cuero, in DeWitt County, have each granted a franchise to L. C. Doney, Jr., to lay a natural gas distributing system. Seguin, county seat of Guadalupe County, and Yoakum in Lavaca County are also considering the proposition. Doney was formerly an official of the Houston Gulf Gas Co., and it is understood will lay a pipe line and secure gas from the Houston Gulf gas line from the Refugio Field. Harrison Smith, of the engineering firm of Sanderson & Smith of New York, and A. L. Forbes, gas engineer of Houston, are working on a survey of the cities where it is proposed to supply gas.

DECISION FOR GAS COMPANY

SAN ANTONIO, Tex., Mar. 26.—In the case of Albert Urbahn against the Rio Grande Oil & Gas Co., a suit started in 1921, and decided three times in the district court at Laredo, the Supreme Court of Texas has decided in favor of the Rio Grande Oil & Gas Co. It involves approximately 53,000 acres of land in the Santos Tomas ranch in Webb County, some miles up the river from Laredo. When the suit was filed in 1921, the Rio Grande Oil & Gas Co. was drilling a well and had it down about 1,600 feet. Under the decision of the Supreme Court, it is given 90 days to resume.

TO ALLOCATE SUPPLY TO LOS ANGELES AREA

SAN FRANCISCO, Calif., Mar. 26.—The State Railroad Commission has been empowered to appoint the first administrator to natural gas to function in California. He will allocate the supply of natural gas among companies in Los Angeles and vicinity.

Representatives of the Southern California Gas Co., Midway Gas Co., Los Angeles Gas & Electric Co. and the Seven Counties Gas Co. attended the meeting approving the new move. These companies are the largest distributors of natural gas in southern California.

Approving the stipulation from the companies, the Railroad Commission refused to recognize a time limit of June, 1928, as the termination of the administrator's office and ordered the companies to prepare stipulations giving the commission full power to act on the appointment as long as the new gas rates recently fixed by the commission continue in effect.

LONE STAR'S DENIAL OF SALE NEGOTIATION

PITTSBURGH, Pa., Mar. 26.—At a stockholders' meeting of the Lone Star Gas Corp., L. B. Denning, president, stated no negotiations are being carried on for sale of the company.

JOINS SOUTHERN GAS CO.

H. Hunter Smith, designing and industrial engineer of Columbia, S. C., has been elected executive vice president of the Southern Gas Co. of San Antonio, Tex., and has assumed his duties. Mr. Smith was formerly associated with the Evans interests in Ohio, South Carolina, Maryland and Florida.

TRUITTSBURG FIELD

TRUITTSBURG, Pa., Mar. 26.—J. A. Beam drilled in a well on the Truitt farm which started off at 300,000 feet a day. He also completed No. 4 on the Baynham farm which started off with 1,500,000 feet. The Apollo Gas Co. drilled in a 500,000 feet well on the Minich farm. Another well having a good production was drilled in by the Red Bank Gas Corp. The majority of the stock of the Red Bank Gas Corp. owned by J. A. Beam and associates has been taken over by T. E. Hanley of Bradford, Pa., who now owns the entire issue. Mr. Hanley will continue the development of the leases, containing over 3,000 acres, in Clarion and Armstrong Counties. They include 22 gas wells with a daily production of more than 25,000,000 cubic feet. J. A. Beam will prospect leases owned by him in Clarion, Jefferson and Clearfield Counties.

NATURAL GAS FOR BROWNSVILLE

SAN ANTONIO, Tex., Mar. 28.—Brownsville, in the Lower Rio Grande Valley, has granted a 30-year franchise to the Rio Grande Valley Gas Co. to supply that city with natural gas.

WYOMING GAS COMPANY TO LAY 75-MILE LINE

The Midwest-Wyoming Gas Co. and the Wyoming Gas Co., of which E. A. Durham is president, confirm announcement of the construction of a 75-mile gas line from the Little Buffalo Basin gas field to connect with the Hidden Dome-Greybull gas line. A contract was awarded to the White Motor Truck Co. of Casper for hauling and stringing 13,000,000 pounds of plain-end pipe and Dresser couplings, and the ditching contract has been let.

The new line will be owned by the Big Horn Gas Co., a subsidiary of the Midwest-Wyoming Co. and The Ohio Oil Co. It is being constructed under the supervision of the Midwest Refining Co.'s pipe-line department and when completed will be operated by the Midwest-Wyoming Gas Co. Ditching started March 15 and the laying of pipe will begin April 1. It is expected to have the entire main line and branches completed and in service by July 1.

For a number of years the Midwest-Wyoming Gas Co. has been supplying the refineries of the Standard Oil Co. of Indiana at Greybull with gas for fuel requirements, and the towns of Basin and Greybull with gas from the Hidden Dome gas field, and the building of this new pipe line will assure an unlimited supply of gas to this market for a number of years, as the Little Buffalo Basin Field is one of the largest gas fields in Wyoming.

The new gas line will mean much to the town of Worland, the only town in the Big Horn Basin that does not have natural gas. The Wyoming Gas Co. will construct the distributing system during the coming summer and a supply of gas will be available by early fall.

Construction of the main pipe line will be 14 miles of 12¾-inch and 43 miles of 14-inch O. D. plain-end pipe. Ten miles from the field end there will be an 8-inch branch line 6 miles long to the Grass Creek oil field, which will supply the fuel required by the Midwest Refining Co. and Ohio Oil Co. in that district. At a point 8 miles northwest of Worland another 8-inch branch will be constructed to supply that town. The distribution system in Worland will be owned and operated by the Wyoming Gas Co. From the 8-inch branch to Worland a smaller line will be constructed 6 miles to supply the Wyoming State Industrial School at Colter, Wyo.

LATEX GETS DECISION; FORT WORTH TO APPEAL

FORT WORTH, Tex., Mar. 26.—Natural gas from Louisiana fields piped into Dallas and Fort Worth by the Latex Oil & Gas Co. and others will not be barred from this city. An application for an injunction filed by the Fort Worth Gas Co. seeking to block the new gas line from entering Fort Worth was denied by District Judge Bruce Young.

The Latex interests seek to supply gas to local industrial plants. The city government has granted the Latex company the right to enter Fort Worth. Judge Young took this action by the municipal government into consideration. He also based his decision on his assertion that "the law seeks to discourage monopolies."

The defendants named in the case are the Latex Oil & Gas Co., the Magnolia Petroleum Co. and the Magnolia Pipe Line Co. They contended that the Magnolia Petroleum Co. had been given a franchise in 1914 by the city granting the right to sell petroleum and its products in Fort Worth. The Latex company claimed protection of this franchise by assignment. The right to lay pipe lines for natural gas for industrial purposes was granted both the Latex and the Magnolia companies by the city council last January.

A contract has been entered into on the strength of these arrangements to furnish the Fort Worth Power & Light Co. with fuel, the defendants set out.

The plaintiffs held that they would suffer irreparable damage if the company were allowed to come into the city. They gave as a basis for this contention that they had spent large sums in laying gas lines and on other equipment to furnish gas to the local consumers. Notice of appeal was given by the Fort Worth Gas Co.

EDMONTON HEARINGS ON NATURAL GAS RATES

CHATHAM, Ont., Mar. 26.—At Edmonton the Alberta Public Utilities Commission heard the application of Northwestern Utilities, Ltd., for the setting of natural gas rates for the city of Edmonton. The commission excluded any evidence as to events prior to the agreement of August 28, 1922. Details of the expenditures made by the company and its revenue were furnished by Julian Garrett, secretary-treasurer, who also testified that since 1922 one well already begun in the Viking Field has been finished and two additional wells drilled.

Stanley Slipper, geologist, testified that there were, all told, 12 wells in the Viking Field, which measured 7½ miles north and south and 2 miles east and west. The average spacing between wells was 1 mile, and the depth of the gas sands about 2,150 feet. On No. 12 well, the most recent, the drilling cost per foot was $12.67, without allowance for delay or trouble. Birch Lake No. 15 well, drilled several years ago to 2,411 feet, with between 2,000,000 and 3,000,000 feet production, indicated that the Viking Field did not extend that far. The Viking Field had been shown not to extend through to the Wainwright Field. Total open flow of the Viking Field did not exceed 8,000,000 feet. The eastern boundary of the Viking Field was not determined.

C. J. Yorath, president and general manager of Northwestern Utilities, testified that failure to drill new wells in 1926 was based upon expert advice. Material for two wells to be drilled in 1927 had been ordered.

H. R. Davis, consulting engineer of Buffalo, N. Y., expert witness for the city of Edmonton, testified that in his opinion an estimate of 27 square miles for the Viking Field was very conservative, that further production would come from the north and west, and that only drilling could determine the eastern extent of the field. He thought the estimate of 60,000,000,000 feet of potential production well founded. During 1926 rock pressure had decreased from 755 to 712 pounds. He thought the company should be able to supply Edmonton and towns along the line with gas from the field as at present constituted until 1943.

PHILADELPHIA MERGER

HARRISBURG, Pa., Mar. 26.—Two subsidiaries of the United Gas Improvement Co. of Philadelphia applied to the Public Service Commission for approval of a merger of their resources, totaling $72,295,754. They are the Counties Gas & Electric and the Philadelphia Suburban Gas & Electric companies.

ADDS COMPRESSOR STATION

The Arkansas Natural Gas Co. recently completed a compressor station at Emmett, Ark. The station, called the Trees station, is on the company's main 18-inch line which supplies gas to Hot Springs. The station has a total of 3,000 horsepower with four Snow and two Cooper compressors.

10 days vs. 4 months

ELLIOTT PETROLEUM CORPORATION
903 WRIGHT & CALLENDER BUILDING
LOS ANGELES, CALIFORNIA

Mr. H. E. Vickerman,
Reading Iron Company,
441 Pacific Mutual Bldg.,
Los Angeles, Calif.

Santa Fe Springs, Calif.,
November 12, 1926.

Dear Sir:

About four months ago, at a time when I was having a great deal of trouble with steel tubing, I was prevailed upon, and finally consented, to try a string of 2½" 6.50# Reading Wrot Iron A. P. I. Tubing. During these four months there have been no failures of any kind and the well has not been off production but once and this was to replace a sucker-rod which had broken.

The steel tubing which had previously been in this well, rod-cut very readily and consequently had to be pulled on an average of once every ten days. This of course meant a tremendous loss of production. I find that although Reading Tubing is somewhat higher than steel the additional service much more than offsets the difference in the initial expenditure.

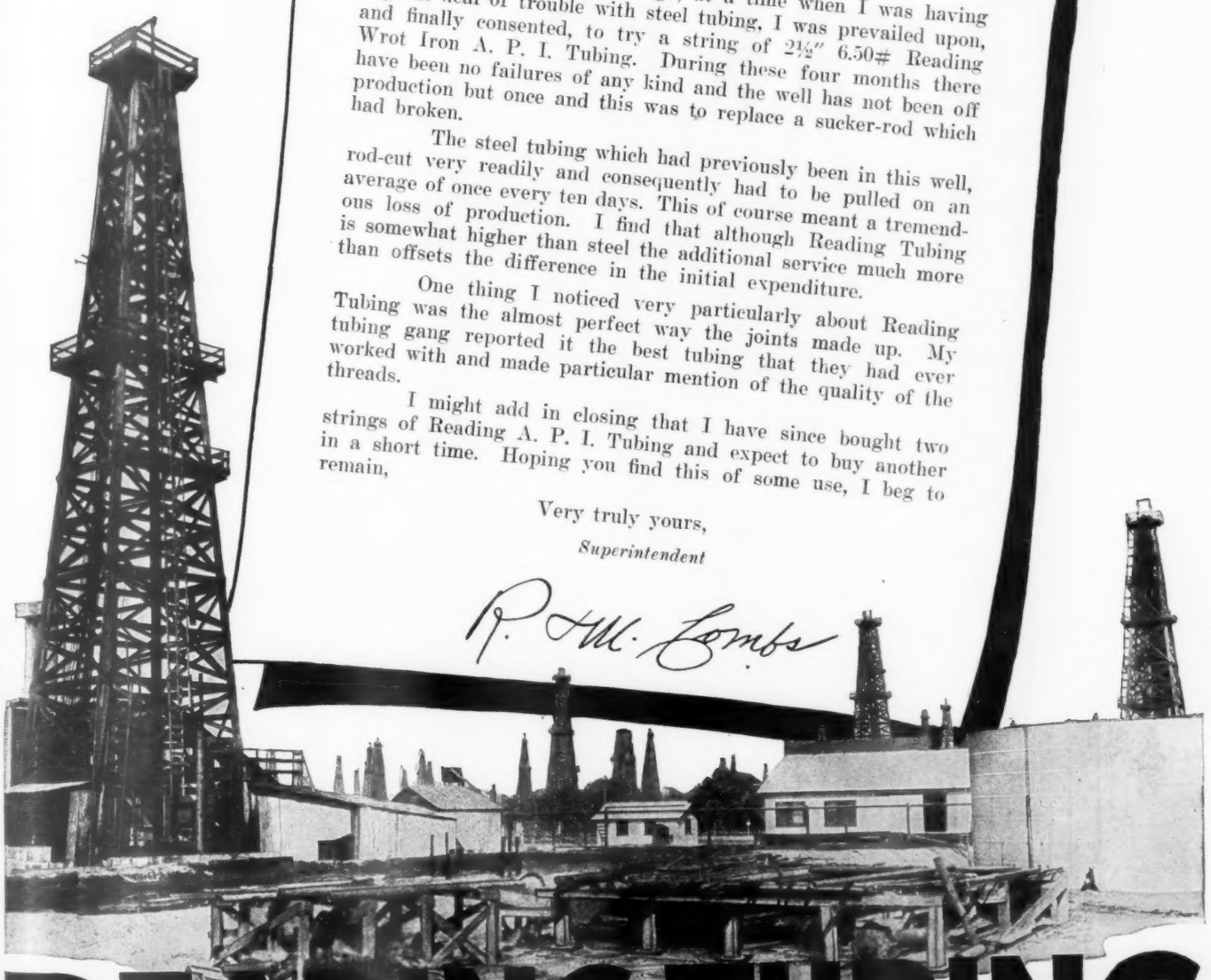
One thing I noticed very particularly about Reading Tubing was the almost perfect way the joints made up. My tubing gang reported it the best tubing that they had ever worked with and made particular mention of the quality of the threads.

I might add in closing that I have since bought two strings of Reading A. P. I. Tubing and expect to buy another in a short time. Hoping you find this of some use, I beg to remain,

Very truly yours,

Superintendent

P. M. Combs



READING TUBING

GENUINE WROUGHT IRON

READING IRON COMPANY DALLAS, HOUSTON, TULSA, SHREVEPORT, LOS ANGELES READING, PENNSYLVANIA

Announcing
that the
OIL WELL
100
Branches
Prepared
to Furnish
Franklin
Valveless

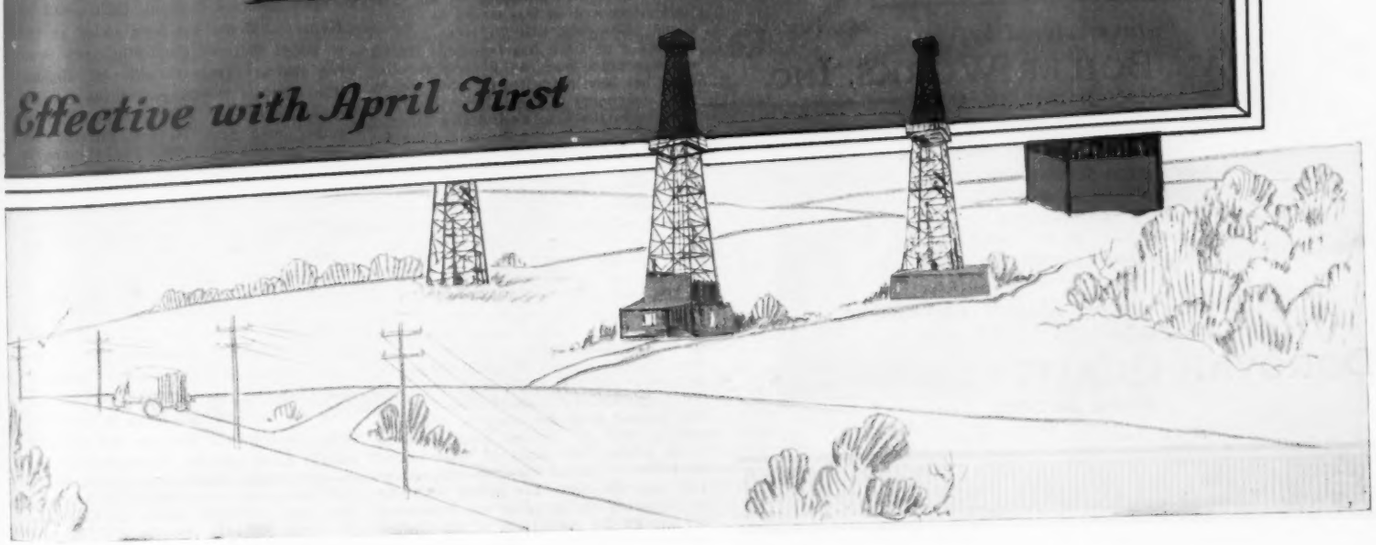
the welcome news

SUPPLY CO.

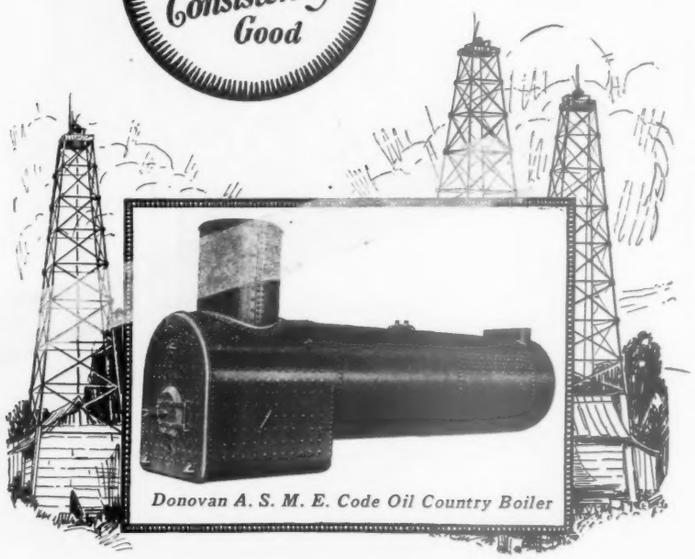
are Sole Distributors for

FRANKLIN VALVELESS ENGINES

Effective with April First



Donovan Boilers are Consistently Good



Donovan A. S. M. E. Code Oil Country Boiler

"have delivered the goods"

El Dorado, Ark.,
November 16, 1925.

Donovan Boiler Works, Inc.,
Parkersburg, W. Va.

Gentlemen:—

During my visit at the International Petroleum Exposition in Tulsa, there was nothing, after viewing all the exhibits, that impressed me more favorably than the Donovan Boiler in operation.

We use Donovans exclusively and have always found them to be perfect in their performance. I do not believe that boilers could be put to a more rigid test than that of rotary drilling, especially that of the Smackover formations which change every few feet. We have soft digging, then tough gumbo. This causes sudden pulls, causing the water to rise and fall. We have found the Donovan more satisfactory on account of having to use bad water as they have an advantage over some other makes in having a longer distance from the bottom gauge to the crown sheet.

We have always been able to get plenty of steam out of both regular and code type. Both have delivered the goods in every respect.

Yours very truly,

GARRETT MODESETT DRILLING CO.
Signed J. M. Garrett.

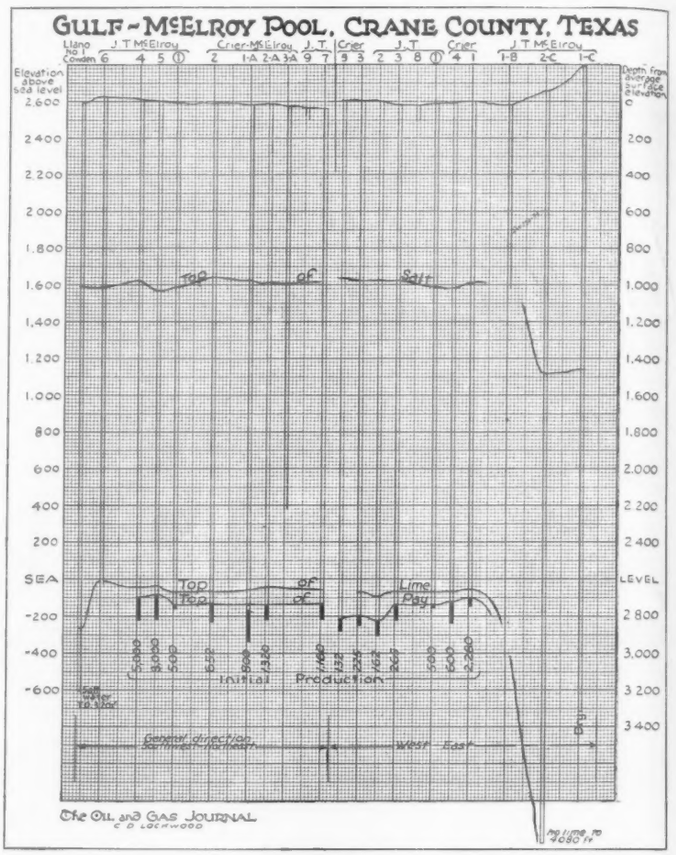
Manufactured by

DONOVAN BOILER WORKS, INC.
PARKERSBURG, W. VA.

NEW YORK OFFICE—30 Church Street
FRICK-REID SUPPLY COMPANY
Mid-Continent Distributors
GREAT NORTHERN TOOL & SUPPLY CO.
MIDLAND IRON WORKS
Montana Distributors

All Leading Supply Houses Throughout the Eastern Fields Handle

DONOVAN QUALITY PRODUCTS
NONE BETTER



The above chart shows the relationship of top of salt, top of lime and production in the Gulf Production Co.'s McElroy Pool, on the Crane-Upton County line, West Texas. All wells shown belong to that company with the exception of the one on the left which is Llano Oil Co.'s No. 1 Cowden, southwest of the pool about 3 miles. Note the fact that top of salt in this well was within 30 feet of the deph in Gulf's 5,000-bbl. producer, No. 4 J. T. McElroy, but top of lime dropped off more than 200 feet. On the right-hand side of the chart, No. 1-B is about a mile northeast of No. 1 Crier-McElroy, which is next to it, and No. 2-C is about 5 miles east of No. 1 Crier-McElroy. No. 1-C is 7 miles northeast of No. 1 Crier-McElroy and is 4 miles north of No. 2-C. No water has yet been encountered in any of the producing wells. The type of structure is a plunging nose.

TITLE TO UTAH WELLS QUESTIONED IN SUIT

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Mar. 26.—The Federal Government permittees sank several wells in the canyon of the Colorado River and oil was struck at several levels. Now the title to river beds in the State of Utah has become a matter of importance and the Federal Government has been requested to intervene, by the Department of the Interior in a suit brought in the United States District Court in Utah by the State of Utah involving the water power rights of the State and title to river beds. As an alternative the Department of the Interior has suggested that the Government bring an original action in the Supreme Court of the United States to clear up this disputed point.

After the oil wells had been struck in the canyon of the Colorado River and another about 100 feet distance with oil showing up at several levels, the State of Utah made a claim to the bed of the river for a distance of about 70 miles, including the places covered by the leases granted by Federal authority, on the ground that the river is navigable and is used by several boats between these points. The State of Utah issued oil leases to one of the large oil companies and the State has joined with the oil company in bringing an injunction against the permittees of the United States Government. This action was brought in the state courts of Utah but later was removed to the United States District Court.

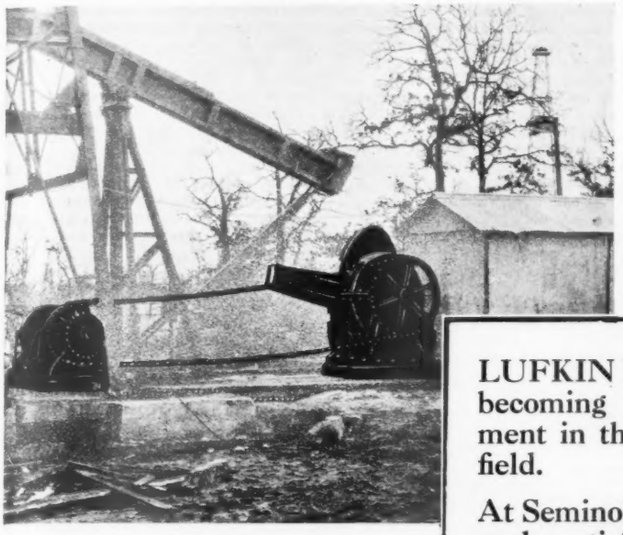
REFINERY IS SEIZED FOR GASOLINE TAXES

The Reliance Refining Co.'s plant at Kalispell, Mont., has been seized by the sheriff of Flathead County on order from the attorney general's office at Helena. The cause is the failure of the refining company to pay the gasoline tax, together with penalties and interest, for two quarters of 1926. The amount is $1,867, and judgment was obtained by the State in an action brought against the refining company in the courts. A complaint has also been filed against the Hart refineries at Missoula on the same grounds.

UNIVERSITY ROYALTY DROPS

AUSTIN, Tex., Mar. 26.—Oil royalties on University of Texas lands in Reagan and Crane Counties for February fell approximately $11,000 below the figures for January, according to the General Land Office. Revenue for the last month going into the University of Texas permanent fund amounted to $177,413, compared with $188,824 in January. Big Lake interests yielded $114,959 and Texon $45,447, Humble $15,758, and Prairie Oil & Gas Co. $1,248.

LUFKIN at SEMINOLE

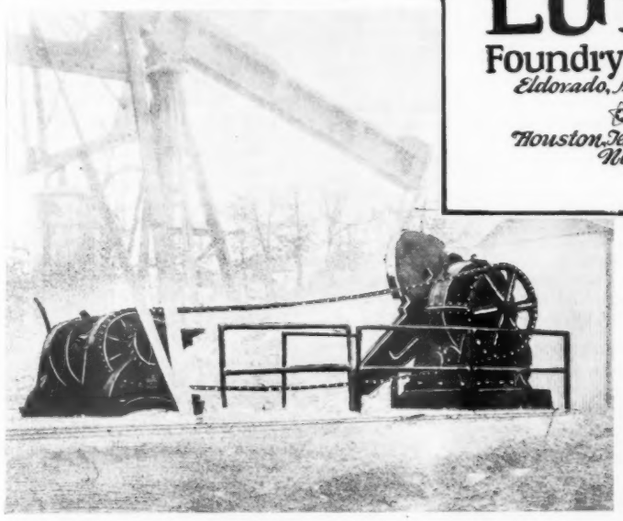


(1)

(1) Tidal Osage Oil Co., Fixico No. 3, Seminole, Okla. Depth 4300', 7/8" rods, 2½" tubing. Steel House, 20-50 G. E. Motor. Lufkin complete.

(2) Tidal Osage Oil Co. Fixico No. 2, Seminole Steel House.

(2)



LUFKIN Units are rapidly becoming standard equipment in the Mid-Continent field.

At Seminole they are giving such satisfactory service that some of the larger operators are standardizing on them—strong in their conviction that they are thoroughly dependable and more economical for pumping.

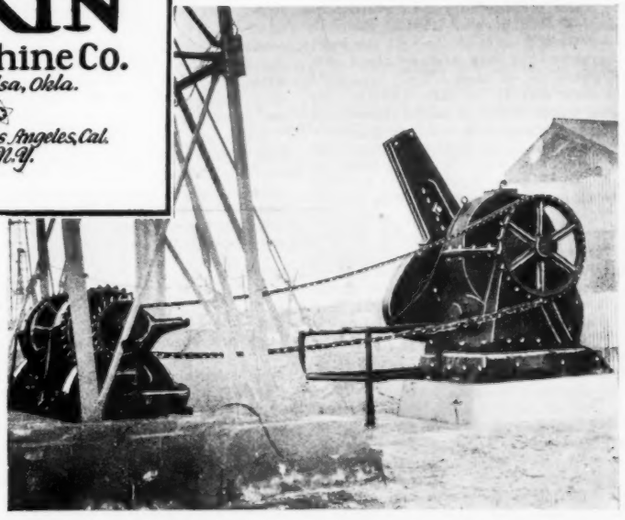
Manufactured at Lufkin Texas
by
LUFKIN
Foundry & Machine Co.
Eldorado, Ark. Tulsa, Okla.
Houston, Texas Los Angeles, Cal.
New York, N.Y.

(3)

(3) The Carter Oil Co. Joe Carter No. 3 Seminole.

(4) Amerada Petroleum Corporation. Fixico No. 4, Seminole Okla. Depth 4300', 7/8" rods, 2½" tubing.

(4)



Soda Process for Petroleum Recovery

First of a Series of Three Statements by Dr. P. G. Nutting of the U. S. Geological Survey on Progress to Date

By P. G. Nutting.*

Considerable interest has been aroused in possible methods of recovering the huge stocks of petroleum remaining in the ground in old oil fields. Driving with compressed air and gas and water flooding are processes already in their second decade of use and have proven their ability to produce oil at a profit in competition with flush production and under a wide variety of conditions. But at best these processes leave over half the oil behind. Mining the oil sand, involving excavation, crushing and washing, cannot compete with flush production at present prices but recovers all the oil. The soda process, developed by the United States Geological Survey, is a modification of water flooding which promises recovery of a high percentage of the oil at a very moderate additional cost.

Much scattered information has been published relating to the soda process, many inquiries relating to special field conditions have been answered, considerable further research has revealed a wealth of detail relating to the nature of the action of water and soda on oil, silica and other materials. Important field tests now far advanced have not been reported upon. Finally there is the rather involved patent situation now clearing up. A comprehensive summary of the process is in order; what the process is, how it works and why, costs and efficiency, how it is best operated under various field conditions and what results may be expected from its use.

Survey of the Process

Systematic water flooding between staggered rows of wells was designed and developed by Forest Dorn, Panyity and others more than 10 years ago. The technical literature of that period contains many papers relating to it. Its use is practically limited to the Bradford district where it is authorized by law. The usual drive is 150 feet between rows of wells with a head of 600 to 800 feet of water through a rather fine-grained, hard sand having 16 to 20 per cent voids and nearly horizontal. All wells are shot to increase their surface area in the sand. Abundant fresh water for operating is usually found in the saturated surface material overlying the consolidated rocks. This water table follows the surface configuration in a general way so that the head derived from it varies with the local topography, but may average about 800 feet above the oil sand. Wells are cased (6⅝-inch casing) to just below this ground water level, the casing closed with a McGregor seat and a 2-inch pipe run to the bottom of the well for pumping or introducing water. No salt beds or heavy brines are encountered, but the water brought out with the oil is usually salty. Maximum production is usually attained in from 8 to 12 months. Pumping is continued for about 30 months. The process of the flood is from 2 to 10 inches per day under the pressure gradient used in the field, say 600 feet head for 150 feet of drive. Although the oil still contains some dissolved gas, its effective driving power has been exhausted because of the numerous old wells. Voids unfilled with oil average perhaps 10 to 15 per cent of the oil space or 2 per cent of the whole sand. In a very few cases this empty space is above the oil.

Use of Soda

When soda is used, a concentrated solution of sodium carbonate (soda ash or washing soda, not bicarbonate which is baking soda) is introduced in advance of the regular water flood. The quantity is such as to form a wall of solution at least a foot thick against the oil. More than this is considered unnecessary because there can be but little diffusion or mixing by convection within the narrow pores, hence the solution will retain its strength as it advances except for a very slight amount which remains adsorbed on the sand grains.

A wall of oil sand 1 by 30 by 180 feet contains 5,400 cubic feet, of which about 1,100 cubic feet are voids if the pore space is 20 per cent. Hence, at 5.61 cubic feet per barrel, it will contain 197 bbls. of fluid. The usual dosage is about 200 bbls. of solution per well. The solution used is nearly saturated, containing about 50 pounds of soda ash or 135 pounds of washing soda (sal soda) per barrel of water. In order not to advance the flood too rapidly and thus by-pass some oil, the solution is put in very slowly at first (not over 5 bbls. per day) the rate being increased gradually so that the whole is put in in about two weeks. This is followed by water at the normal rate of about 50 bbls. per day.

Commercial soda ash sells at $25 per ton and the market is very stable since it is made and used in immense quantities in glass making. Washing soda or sal soda is about $50 per ton and is 63 per cent water so that 2.7 times as much must be used. The solutions are identical when of equal strength. Either dissolves readily in water if vigorously stirred or if hot water is used. Saturated solutions contain soda ash as follows.

At 32°F	24½ lbs./bbl.	7 lbs./100 lbs. wtr.
41	33½	9½
50	44	13
59	56	17
68	74	21½
77	95½	28
86	125	38

Strong Solutions Preferable

The precise concentration of solutions is of almost no consequence so far as its operation is concerned (for reasons discussed later) but strong solutions are preferable on account of inevitable losses and dilutions. But, if a solution is made up saturated hot, it should be cooled to below well temperature before being put in the well or else some soda may crystallize out in the well thus clogging the sand.

The action of the soda solution is not to wash the oil off but to get between the oil and the sand grain, to which it clings very tenaciously, thus permitting it to be flushed away. Neither gas nor compressed air will do this. They merely drive out the loose oil in the pores which is but a small fraction of the whole. Fresh pure water acts like soda solution by getting between the oil and the sand but water becomes contaminated after a few hours in contact with oil and refuses to drive it off. A fresh-water spray cleans crushed oil sand (after mining) very well but in a water drive the same stale water and oil remain in contact for many months, the water is no longer selectivity adsorbed by the sand and by-passes the oil. Soda solution acts always like fresh water. All these effects are readily tested on a small scale and have been repeated many times in the laboratory.

Maintaining Production

When soda solution is used for driving, the production would be expected to be nearly the same as when plain water is used for the first ten or twelve months or up to maximum production since what comes out is chiefly petroleum with some ground water. From then on the effect of more complete flushing should be shown in maintaining the production near its maximum over a much longer period than when only water is used. One short drive (80 feet), started in July 1925, seems to have shown just this effect. The longer regular drives appear to be beginning to show it. By 1928 the first field tests should be near completion. By the end of 1930 it should be possible to form an estimate of the limitations and possibilities of the soda process. These first field experiments were started during the summer of 1925 on the 100 per cent showing of numerous small-scale laboratory experiments made mostly during the preceding May and disclosed in a press notice released July 2.

Although most oil sands are composed almost entirely of sand grains of pure silica; iron oxide, alumina, lime, gypsum and many siliceous minerals are usually present in separate grains and some of them frequently in the form of coatings over the sand grains. Numerous tests were made to find whether soda would loosen oil from such grains, the materials being crushed and sifted to sand size. All of the minerals mentioned were freed from petroleum (after being saturated with it) quite as easily and completely as the pure silica grains. The metal sulphides and coal dust were the only minerals found not to be freed from oil by a soda solution.

When Brines are Present

When brines are associated with the oil, either as edgewater or in strata above the oil sand care must be exercised in the use of a soda-driving solution. Sodium carbonate is indifferent toward other salts of sodium or potassium such as the chlorides (common salt), bicarbonates (abundant in northern Colorado and Wyoming) or sulphates. Nor does it react with the carbonates of bases weaker than itself, such as calcium (lime and marble) and magnesium. Brines consisting of solutions of any of these salts may be treated as fresh water so far as the use of soda solutions is concerned.

But sodium carbonate does react with combinations of weak bases with strong acids, such as calcium chloride, or sulphate in solution. It is itself a combination of strong base and weak acid and the strong base (sodium) appropriates the strong acid (chlorine) from the weaker base calcium, leaving the weaker acid to the weaker base. Calcium and magnesium chlorides are not uncommon in the Mid-Continent fields. A simple but sufficient test for a well brine is to mix with it some of a solution of washing soda. If a white thick sediment (calcium or magnesium carbonate) is formed, the brine cannot be disregarded in soda driving. If the mixture remains clear, then the brine may be treated like pure water in driving with soda solution.

If calcium or magnesium chlorides be present in the brine, then obviously soda solution should not be mixed with it in an open intake well. In the fine pores of an oil sand, the little mixing that occurs during driving appears to be of no consequence. The writer has many times driven a saturated solution of calcium chloride from a tube of sand by means of sodium carbonate solution without any preceptible clogging of the pores. All attempts to wall off a brine-soaked sand by this means were unsuccessful. If a calcium chloride brine has been entering a well from higher strata, it must be cased off and the well thoroughly washed out before it can be safely used as an intake well for soda driving. After an oil sand has been watered out with such brines attempts to redrive it with soda solution are not likely to be successful.

Amount of Solution Used

The amount of laxative solution used up during a long drive is of interest. This has been found by direct test and may readily be calculated. An average oil sand has grains about 0.2 mm or 1/250

(Continued on Page 150)

* Published by permission of The Director, United States Geological Survey.

ABSTRACTS OF PAPERS READ BEFORE GEOLOGISTS' MEETING

Big Sand Draw Field, Wyoming

By Col'n C. Rae, United States Geological Survey, Okmulgee, Okla. — The Big Sand Draw Field, located in Fremont County, Wyoming, has produced approximately 20,000,000,000 cubic feet of gas from the upper Frontier formation, with showing of oil in an edge well, and rock pressure is still over 1,000 pounds per square inch.

While the field cannot be compared in area to the Salt Creek Field, it is of exceptional geological interest since it has a proven closure of probably over 1,300 feet, and there are several untested lower sand horizons, which are productive in other Rocky Mountain oil fields.

Study of the Mexia Fault Zone

By F. H. Lahee, Sun Oil Co., Dallas, Tex.—The following nine fields are now producing oil or gas in the Mexia fault zone: South Groesbeck, North Groesbeck, Mexia, Wortham, Currie, North Currie, Richland, Powell and Nigger Creek. In every case the accumulation of petroleum is related to a fault having a displacement of several hundred feet, with downthrow on the west, that is, on the side up the dip of the strata. In every case, the principal production is coming from sands in the upper part of the Woodbine formation of basal upper Cretaceous age. In other respects, such, for instance, as character of the petroleum produced, subsea depth of the original oil-water contact, producing area of the field, structural relief of the producing part of the structure, and the nature of the associated water, there are rather marked differences.

Because of the close similarity of these fields in their structural and stratigraphic relations, they present a very interesting problem for the comparison and study of their differences.

Fairport Field, Russell County, Kansas

By Tom A. Allan and M. M. Valerius, Tulsa, Okla.—The Fairport oil field, Russell County, Kansas, is on the northwestern edge of the Mid-Continent area. The prominent cretaceous surface structure becomes stronger in the Permian and Pennsylvanian, and apparently overlies uplifted crystaline rock. The oil is at the top of the structure in a pool one-half mile wide by 4 miles long which has produced 3,500,000 bbls. of 40-gravity oil during the past three years.

Lost Soldier District, Wyoming

By J. S. Irwin, Denver, Colo. — The commercial oil and gas pools of the Lost Soldier district are found at the crests of anticlines and domes except in the G. P. Field. In the G. P. Field the oil occurs on the axis of a steeply pitching anticline without structural closure. The "G. P. sand" is a variable, sandy shale and shaly sandstone horizon which is productive nowhere else in the district, even on closed structure."

The Mowry shale yields commercial oil on or near the crests of Ferris, Wertz, and Little Lost Soldier domes—the three sharpest folds of the district. The gen-

(Continued on Page 127)

Machine Also Backfills Mile of Ditch per Day

The machine illustrated herewith is also capable of backfilling a mile of 24"x36" ditch per day, using a six foot mormon board. For this work, the wire line is disconnected from the snatchblock and attached to the mormon board. The Side Winch, which furnishes power for the Boom, then backfills a mile of ditch per day, at a cost of approximately $22.50 per mile. The most revolutionary machine offered the pipe line business in years. *Write for particulars.*

Boom Now Used For Hustling, Loading, Laying, Lining, Lowering, Raising, Pulling and Bending Pipe on Dozens of Big Jobs Over Country.

Originally designed especially for laying plain end Dresser line, the W-K-M Boom is now in highly successful use on almost every pipe handling job connected with pipe line work. It is used for hustling pipe from point to point, for loading pipe on wagons or trucks, for laying Dresser line, for lining pipe up for the welders, for lowering pipe into the ditch, for raising pipe on reclamation work, for pulling pipe under road, railroad and creek crossings, for bending pipe, for feeding pipe to Buckeye and Mahoney Pipe Screwing Machines. Used by the largest pipe line companies. Write for full details and low prices.

World's Pipe Laying Record Established with W-K-M Boom—900 Joints of 16 pipe in 5½ Working Hours

Clipped from the WICHITA DAILY TIMES, Feb. 25, 1927

CREW LAYS 18,000 FEET 16-INCH GAS MAIN IN SIX HOURS

The Hope Engineering and Supply company, with James Manaugh as construction superintendent, probably smashed all records for speed in the placing of approximately three miles of 16-inch gas line which is being laid for the Upham Gas company as its main feeder from the Hutchinson field to this city.

Starting off the day's work at 7:30 a. m. Thursday, this crew, with the aid of the W. K. M. company's winches and booms attached to Fordson tractors, placed in position and bolted in five and one-half hours 900 joints of 16-inch pipe, each joint of a length of 20 feet, or a total of 18,000 feet.

The test took place between Iowa Park and Wichita Falls and surpassed the company's previous record of 1160 joints in eight and a half hours, made some time ago on entering Vernon.

A new world's pipe laying record has been chalked up!

Credit for the performance goes jointly to Jim Manaugh, construction superintendent of the Hope Engineering & Supply Company, and the W-K-M Pipe Laying Boom, built for the Fordson Tractor.

With his W-K-M Boom equipment and several small crews, Mr. Manaugh laid and bolted 900 joints of 16-inch plain end Dresser line in exactly 5½ hours. The record is attested by a representative of the Wichita (Texas) Daily Times, who witnessed the race with time. His report of the record is reproduced herewith.

But, better than *high speed* of laying, is the new *low cost* of laying pipe lines when the W-K-M Boom is used. This machine takes the place and does the work of from twelve to twenty men, depending upon the size of pipe being laid. One machine, on a 39 mile line, saved its cost and earned $5,000 for its owners. Dozens of others, on some of the biggest pipe line jobs in the country, are doing equally well.

If you are in any way connected with pipe line work, you should know all about this remarkable machine, as well as the new W-K-M Bulldozer, with which one man can backfill a mile to a mile-and-one-half of open ditch per day, at a cost not to exceed $15. Write today for bulletins No. 235, 240 and 245. They will gladly be sent on request, and no obligation.

W-K-M COMPANY, Inc.
HOUSTON, TEXAS

Sold Through Authorized FORDSON Dealers Everywhere

W-K-M COMPANY, Inc.
HOUSTON, TEXAS.

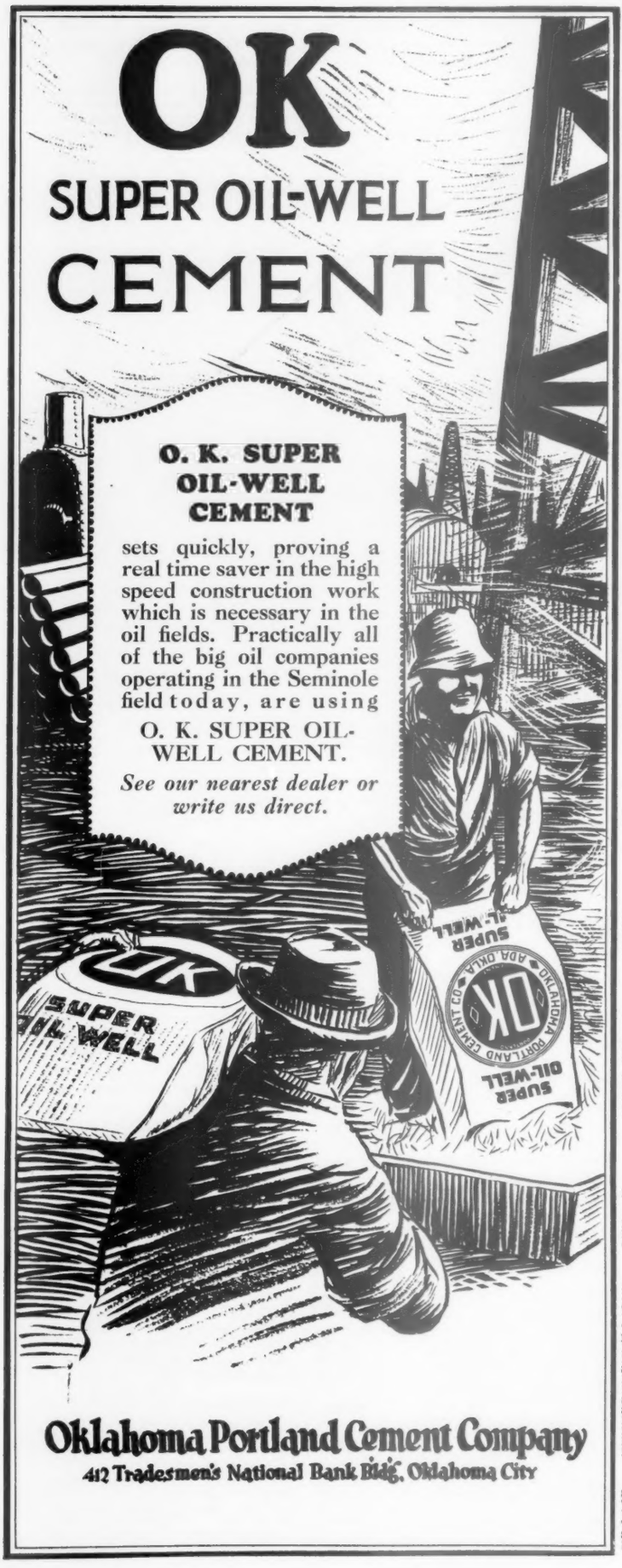
Gentlemen: We would like to know more about the W-K-M PIPE LAYING BOOM. Send your descriptive pamphlet to the address below:

Name .....

Street .....

City .....

State .....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sets quickly, proving a real time saver in the high speed construction work which is necessary in the oil fields. Practically all of the big oil companies operating in the Seminole field today, are using
O. K. SUPER OIL-WELL CEMENT.
See our nearest dealer or write us direct.
Oklahoma Portland Cement Company
412 Tradesmen's National Bank Bldg. Oklahoma City

SIX MONTHS' PRODUCTION AT RATE OF 854,156,845 BARRELS PER YEAR

By James McIntyre

A total of 68,318,462 bbls. of crude oil was produced in the United States in February, 1927, which was 13,876,814 bbls. in excess of the production in February, 1926, an increase of 495,546 bbls. per day.

The daily average production of 2,439,945 bbls. per day in February of this year was 73,629 bbls. a day in excess of the daily average in January of this year.

The production for the 12 months ending February 28 was 802,373,208 bbls. The production for the 12 months ending December 31, 1926, was 775,561,275 bbls. The production for the six months ending February 28 was 423,567,775 bbls., a daily average of 2,340,153 bbls. The production for the six months ending February 28 was at the rate of 854,155,845 bbls. a year.

The production of the five states of Kansas, Oklahoma, Texas, Louisiana and Arkansas in February averaged 1,605,122 bbls., an increase over the January daily average of 81,635 bbls. This increase came mostly from Oklahoma, as Texas and Arkansas showed a decline from their January production, and Kansas and Louisiana scored only a nominal gain.

Following are the figures on February production:

SUMMARY BY PRODUCING DIVISIONS

Crude Oil Production (in bbls.), February, 1927

Mid-Continent Fields	Dy. Ave.	Month
Kansas	119,622	3,349,416
Oklahoma	705,441	19,752,348
North Texas	93,615	2,621,220
Central Texas	67,964	1,902,992
West Texas	66,350	1,857,800
Panhandle Texas	126,010	3,528,280
East Central Texas	49,936	1,398,208
Arkansas	127,652	3,574,256
North Louisiana	52,643	1,474,004
Total, February	1,409,233	39,458,524
Total, January	1,315,117	40,768,627
Difference	94,116	1,310,103

GULF COAST AND SOUTHWEST TEXAS	Dy. Ave.	Month
Gulf Coast (Tex.-La.)	157,485	4,409,580
Southwest Texas	38,404	1,075,312
Total, February	195,889	5,484,892
Total, January	208,370	6,459,470
Difference	12,480	974,578

PRODUCTION BY STATES	Dy. Ave.	Month
Kansas	119,622	3,349,416
Oklahoma	705,441	19,752,348
Texas	588,689	16,483,292
Arkansas	127,652	3,574,256
Louisiana	63,718	1,784,104
Total, February	1,605,122	44,943,416
Total, January	1,523,487	47,228,097
Difference	81,635	2,284,681

PRODUCTION OF THE UNITED STATES	Dy. Ave.	Month
Oklahoma	705,441	19,752,348
California	642,240	17,982,711
Texas	588,689	16,483,292
Arkansas	127,652	3,574,256
Kansas	119,622	3,349,416
Louisiana	63,718	1,784,104
Rocky Mountain	85,183	2,385,135
Eastern fields	107,400	3,007,200
Total, February	2,439,945	68,318,462
Total, January	2,366,316	73,355,765
Difference	73,629	5,037,303

KANSAS

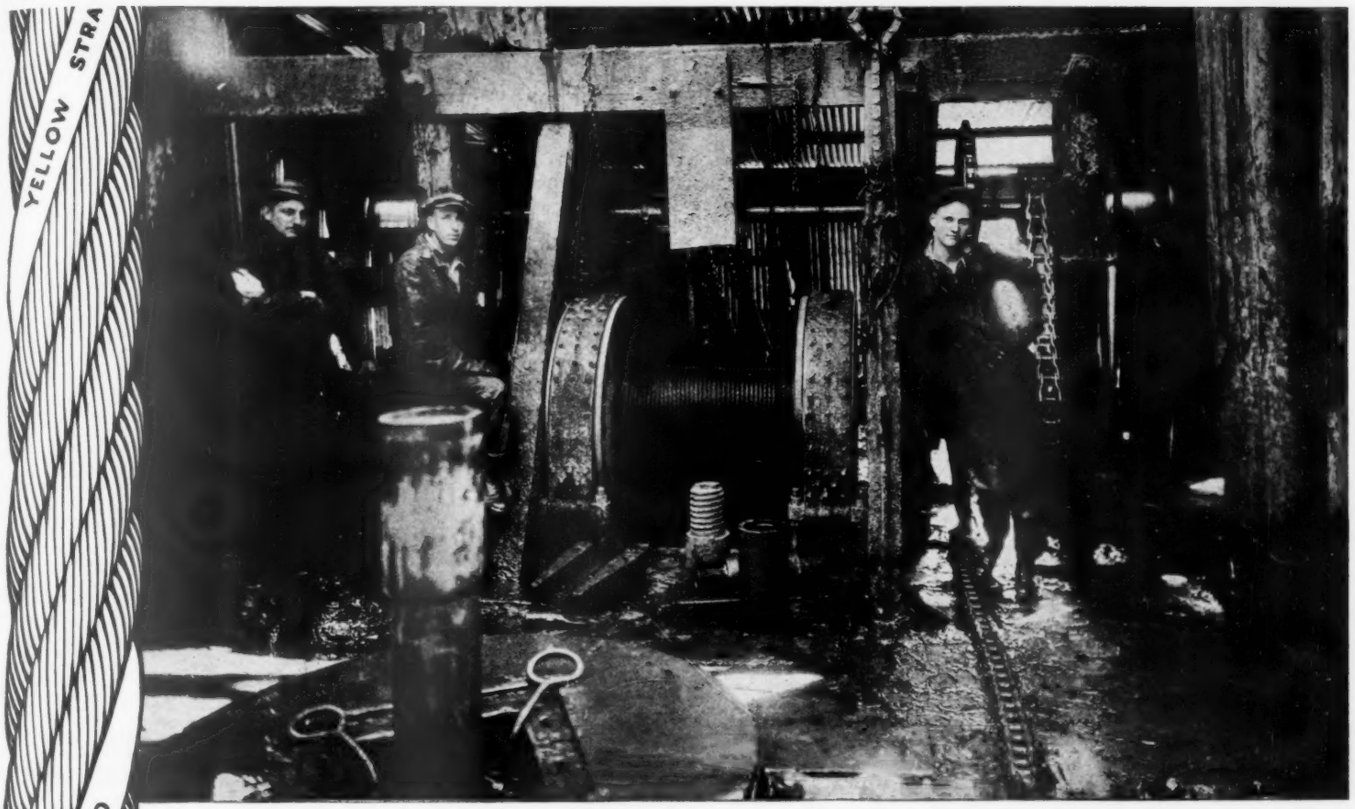
Daily Average and Total Monthly Production in February, 1927.

Marion County—	Daily Av.	Month
Florence	915	25,620
Peabody	1,574	44,072
Covert-Sellers	843	23,604
Total	3,332	93,296
Butler County—		
Elbing	2,557	71,596
Potwin	379	10,612
Cameron-Robinson	628	17,584
Wilson-Dunkle	1,479	41,412
Towanda	2,504	70,112
Fox-Bush	1,325	37,100
Nuttle-Koogler	2,121	59,388
Eldorado	6,924	193,872
Smock	231	6,468
Leon-Weaver	2,322	65,016
North Augusta	1,341	37,548
South Augusta	1,631	45,668
Sluss	403	11,284
Benton	70	1,960
Douglas	133	3,724
Keighly	3,270	91,560
Eastern Butler	1,185	33,180
Total	28,503	798,084
Greenwood-Woodson Counties—		
Sallyards	1,507	42,196
Teeter-Pixley-Scott	13,257	371,196
Virgil	4,406	123,368
Thrall-Burkett	2,979	83,412
Seely	13,454	376,712
Polhamus	1,583	44,324
Wiggins	3,368	94,304
Miscellaneous	486	13,608
Total	41,040	1,149,120
Cowley County—		
Rainbow Bend	2,515	70,420
Slick	1,415	39,620
Graham	769	21,532
Rock (Twp. 30-4)	285	7,980
Clark (Twp. 31-5)	216	6,048
Eastman (Twps. 30-6 and 31-6)	782	21,896
Winfield-New Salem Twps. 32-4 and 32-5)	2,567	71,876
Miscellaneous	345	9,660
Total	8,894	249,032
Other Counties—		
Sumner	16,370	458,360
Rice	1,055	29,540
Russell	3,396	.....
Harvey	39	1,092
Chautauqua	2,462	68,936
Elk	3,204	89,712
Montgomery	1,619	45,332
Wilson	257	7,196
Allen	737	20,636
Neosho	664	18,592
Lyon	2,793	78,204
Miami	660	18,480
Franklin	457	12,796
Douglas	69	1,932
Bourbon	19	532
Woodson	666	18,648
Linn	311	8,708
Anderson	2,788	78,064
Coffey	260	7,280
Labette	27	756
Total February	119,622	3,349,416
Total January	118,333	3,668,323
Difference	1,289	318,907

OKLAHOMA

Daily Average and Total Monthly Production in February

	Daily Av.	Month
Washington County	6,145	172,060
Nowata County	4,780	133,840
Rogers County	1,659	46,452
Osage and Eastern Kay Counties—		
Burbank	46,339	1,297,492
Osage, outside Burbank	32,358	906,024
Total	78,697	2,203,516
Tulsa County—		
Bird Creek, Owasso, etc.	3,776	105,728
Red Fork, Sand Springs, Bruner, Turkey Mountain and Fisher	6,390	178,920
Bixby, Leonard and Jenks	2,071	57,988
Broken Arrow and Coweta	1,193	33,404
Total	13,430	376,040
Okmulgee, Muskogee and N. Okfuskee Counties—		
Mounds, Beggs, Hamilton Switch, Youngstown	8,642	241,976
Bald Hill and Haskell	4,427	123,956
Morris, Boynton and Cole	2,765	77,420
Okmulgee	2,592	72,576
Tiger Flats, Henryetta, Schulter and Bartlett	2,766	77,448
Total	21,192	593,376
Okfuskee, Seminole and Hughes Counties—		
Seminole:		
Seminole City	237,448	6,648,544
Earlsboro	16,868	472,304
Searight	29,998	839,944
Bowlegs	10,823	303,044
Total Seminole	295,137	8,263,836
Deaner Lyons	3,234	90,552
Wewoka	16,540	463,120
Cromwell	13,531	378,868
Papoose-Gilcrease	7,787	218,036
Weleetka	1,041	29,148
Holm-Jarvis	1,553	43,484
Yeager	488	13,664
Miscellaneous	2,447	68,516
Total	341,758	9,569,224
Creek County—		
Cushing-Shamrock	19,795	554,260
Glenn Pool, Sapulpa and Kiefer	8,074	226,072
Bristow, Kellyville and Depew	23,137	647,836
North Bristow and Pickett Prairie	3,287	92,036
Eastern Bristow or Slick	4,833	135,324
Total	59,126	1,655,528
Pawnee County—		
Cleveland	3,745	104,860
Keystone	3,539	99,092
Jennings	3,922	109,816
Otoe or Watchorn	2,914	81,592
Masham	183	5,124
Ralston	40	1,120
Total	14,343	401,604
Payne County—		
Yale, Quay and Ingalls	5,225	146,300
N. Cushing or March Pool	2,360	66,080
Deep Rock (23-18-3)	3,188	89,264
Total	10,773	301,644
Lincoln County—		
Stroud	1,542	43,176
Davenport	3,947	110,516
Kendrick	697	19,516
Total	6,186	173,208
Kay, Grant and Noble Counties—		
Blackwell	1,407	39,396
Otstot	1,676	46,928
Vernon	705	19,740
Deer Creek	118	3,304
Ponca City	759	21,252
Mervine	277	7,756
North Braman	10,149	284,172
South Braman	4,280	119,840
Hubbard	6,488	181,664
Thomas	1,483	41,524
Tonkawa	26,712	747,936



Good for Another Deep Hole

This old Yellow Strand Line has already handled the casing in two holes. It stretched 24 inches while pulling 2200 feet of 6¼-inch casing. And was still in good condition after that.

Elastic-strength accounts for the remarkable vitality of Yellow Strand Rotary Drilling Line. Flexible, too; bears up under high-speed bends over sheaves and drum. Time saved is money saved. Specify Yellow Strand Rotary Drilling Line.

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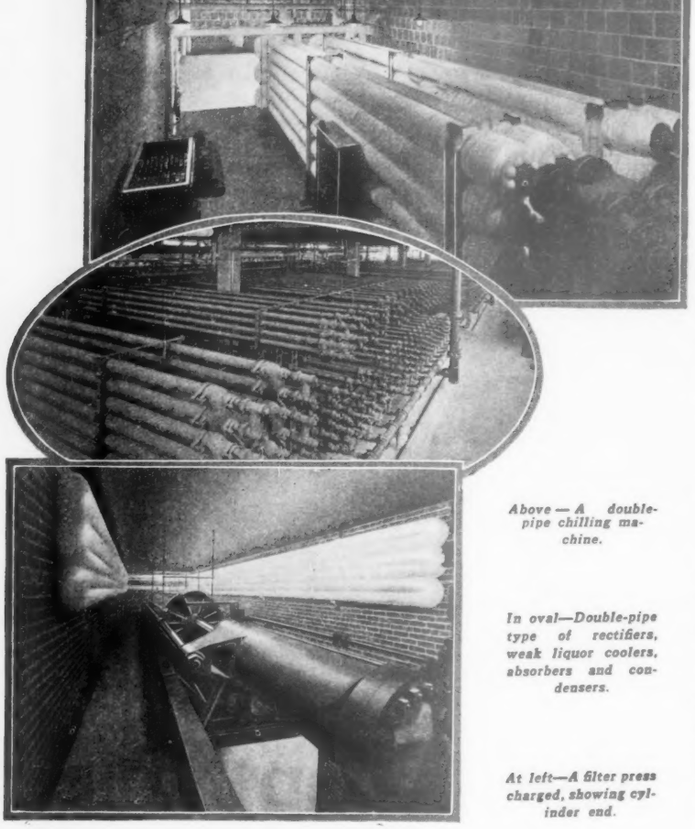
Yellow Strand Rotary Casing Lines



Above — A double-pipe chilling machine.

In oval—Double-pipe type of rectifiers, weak liquor coolers, absorbers and condensers.

At left—A filter press charged, showing cylinder end.

Gulf Refining Chose Carbondale

Supreme Auto Oil owes its popularity to proven lubricating qualities. It can be depended upon for consistent performance.

The same may truthfully be said of Carbondale Refrigeration. Refiners know from experience that Carbondale Machinery will give the same dependable service, year after year.

The fact that plants in operation for more than 30 years are still giving satisfactory service, testifies to the quality of performance which may be expected.

CARBONDALE MACHINE COMPANY
Carbondale, Pa.
Branches in Principal Cities

Carbondale Refrigeration
CARMACO *for Refiners*

	Daily Av.	Month
Billings	334	9,352
Miscellaneous	176	4,928
Total	54,564	1,527,792
Garfield County—		
Garber	19,546	547,288
Carter County—		
Healdton	14,920	417,760
Hewitt	9,931	178,068
Graham	6,260	175,280
Fox	3,955	110,740
Brock	1,300	36,400
Tussy or Scholem Alechem	13,429	376,012
Total	49,795	1,394,260
Stephens-Cotton Counties—		
Loco-Milroy	2,267	63,476
Comanche	790	22,120
Duncan	5,266	147,448
Walters	882	24,696
Kilgore	157	4,396
Total	9,362	262,136
Jefferson County—		
Hamhro	2,168	60,424
Caddo County—		
Cement	1,946	54,488
Garvin County—		
Robberson	2,842	79,576
Knox	6,169	172,732
Total	9,011	252,308
Beckham County—		
Sayre	61	1,708
Pontotoc County—		
Allen, Lloyd and Francis	481	13,468
Pottawatomie County—		
Maud	316	8,848
Marshall County—		
Madill	112	3,136
Total February	705,441	19,752,348
Total January	613,895	19,030,745
Difference	91,546	721,603

NORTH AND CENTRAL TEXAS
Daily Average and Total Monthly Production in February

North Central Texas—	Daily Av.	Month
Burkburnett	12,876	360,528
Electra	13,923	389,844
Iowa Park K.M.A.	4,459	124,852
Archer County	29,114	815,192
Clay County	728	20,384
Wilbarger	13,869	388,332
Montague County	12,487	349,636
Young County	4,840	135,520
Baylor County	100	2,800
Cooke County	1,219	34,132
Total	93,615	2,621,220
Central Texas—		
Clear Fork	5,055	141,540
Breckenridge	4,850	135,800
Caddo	2,982	83,496
Ranger-Eastland	6,990	167,720
Rising Star	39	1,092
Sipe Springs	162	4,536
Desdemona	1,486	41,608
Pioneer	467	13,076
Brown County	22,394	627,032
Calahan County	5,320	148,960
Coleman County	1,649	46,172
Throckmorton County	1,665	46,620
Jack County	527	14,756
Palo Pinto County	473	13,244
Shackelford County	13,240	370,720
Throckmorton County	1,665	46,620
Total	67,964	1,902,992
West Texas—		
Reagan County	26,690	747,320
Mitchell County	3,687	103,236
Winkler County	175	4,900
Howard-County	1,689	47,292
Scurry County	34	952
Upton-Crane Counties	29,706	831,768
Crockett County	1,110	31,080
Loving County	15	420
Pecos County	3,244	90,832
Total	66,350	1,857,800
Panhandle—		
Carson County	6,440	180,320
Hutchinson County	110,333	3,089,324
Moore County	10	280
Wheeler	1,443	40,404
Gray	7,749	216,972
Potter	35	980
Total	126,010	3,528,280
East Central Texas—		
Powell	22,808	638,624
Mexia	15,913	445,564
Nigger Creek	5,104	142,912
Currie	803	22,484
Richland	1,140	31,920
Wortham	4,168	116,704
Total	49,936	1,398,208
Total all fields, Feb.	403,875	11,308,500
Total all fields, Jan.	400,128	12,403,968
Difference	3,747	1,095,468

NORTH LOUISIANA
Daily Average and Monthly Production in February

	Daily Av.	Month
Bellevue	1,493	41,804
Caddo light	10,126	283,528
Caddo heavy	4,511	126,308
Cotton Valley	6,114	171,192
DeSoto and Red River	3,973	111,244
Elm Grove	726	20,328
Haynesville	8,144	228,032
Homer	5,342	149,576
Urania	12,214	341,992
Total February	52,643	1,474,004
Total January	51,262	1,589,122
Difference	1,381	114,918

ARKANSAS
Daily Average and Monthly Production in February

	Daily Av.	Month
Smackover heavy	101,044	2,829,232
Smackover light	12,082	338,296
El Dorado	6,054	169,512
Lisbon	5,031	140,868
Nevada	1,807	50,596
Bradley	220	6,160
Stephens	1,414	39,592
Total February	127,652	3,574,256
Total January	131,499	4,076,469
Difference	3,847	502,213

GULF COAST
Daily Average and Monthly Production in February

District—	Daily Av.	Month
Boling	2,175	60,900
Batson	1,626	45,528
Blue Ridge	2,587	72,436
Barber Hill	566	15,848
Big Creek	2,169	60,732
Damon Mound	988	27,664
Dayton	67	1,876
Edgerly (La.)	857	23,996
Goose Creek	7,731	216,468
Humble	3,873	108,444
Hull	17,237	482,636
High Island	737	20,636
Jennings (La.)	1,057	29,596
Lockport (La.)	3,412	95,536
Markham	553	15,484
Nash	614	17,192
Orange	5,411	151,508
Orchard	57	1,596
Pierce Junction	7,530	210,840
Piedras Pintas	200	5,600
Spindletop	69,130	1,935,640
Saratoga	1,235	34,580
Sour Lake	5,418	151,704
South Liberty	4,153	116,284
Vinton (La.)	5,675	158,900
West Columbia	10,271	287,588
Welsh-Anse La Bute (La.)	74	2,072
*Miscellaneous	2,082	58,296
Total February	157,485	4,409,580
Total January	168,786	5,232,366
Difference	11,301	822,786

*Includes Nacogdoches, Washington County, Kleberg County and scattered.

SOUTHWEST TEXAS
Daily Average and Monthly Production in February

Field—	Daily Av.	Month
Luling	18,145	508,060
*Mirando	15,247	426,916
Somerset	1,671	46,788
Calliham	42	1,176
Rockdale-Minerva	977	27,356
Lockhart	2,322	65,016
Total February	38,404	1,075,312
Total January	40,183	1,246,673
Difference	1,779	170,361

*Includes Webb, Jim Hogg and Zapata Counties.

OIL SHALE PROJECT INTERESTS ESTHONIA

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Mar. 26.—An ambitious project for the breaking of a billion tons of oil shale is embodied in a concession granted by the Esthonian government to Swedish interests, according to Assistant Trade Commissioner Emil Kekich, at Stockholm.

A trial plant is being built where distillation of shale on a manufacturing basis will be undertaken and the intention is to build several new factories if the trial during the first year proves to be as favorable as previous experiments. To begin with 50,000 tons of shale will be treated annually.

Swedish experts are to be in charge of the distillation and attempts will be made to extract benzine, lubricating oils and fuel oil. The capital is both Swedish and foreign and when the enterprise is ready it is estimated it will involve from 20,000,000 to 30,000,000 Swedish crowns.

The Esthonian shale deposits are enormously rich. Many billions of tons are waiting to be exploited and experts describe the shale as being much richer in oil than Swedish shale.

GASOLINE TAX IN SPAIN

The Delegation of Hacienda on January 27, gave formal permission to the municipality of Madrid to place a consumption tax upon gasoline and similar fuels beginning with the next fiscal year. The tax may not exceed 5 pesetas (approximately 80 cents) per hectoliter. The tax is to be collected upon introduction within the municipality limits and the collection may not be placed in the hands of the vendor of the material.

NEW FIELD IN TURKESTAN

An oil gusher has been struck at a depth of 600 feet in the ozokerite deposit in Uzebekistan, Turkestan. The gusher had an initial yield of 1,000 poods (1 pood equals 36.11 pounds) of oil every 24 hours. The oil is stored in temporary earthworks, as no storage facilities are available. In Kara-Kalpak, an autonomous republic adjoining the Uzbekistan on its southern border, there have been found outcroppings of ozokerite such as usually accompany oil.

The OAK and the Mushroom

From an acorn the oak grows steadily. As the years are added it gains in strength, and size. The Mushroom, rising overnight, quickly fades away - - - forgotten.

The Axelson Organization has grown like the Oak, bringing into maturity a ripened experience that is invaluable to pump and sucker rod users.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

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P. O. Box 337, Los Angeles. Tulsa, St. Louis, New York City
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Axelson Pumps & Sucker Rods

Fuel oil *available for sale as fuel* in the Mid Continent field shows a decrease for the first 10 months of 1926 as compared with 1925

This is mainly due to the more valuable use of fuel oil for direct conversion into good Knoxless-Pullsmore gasoline by the Dubbs Process in one operation instead of selling it to users of industrial fuel

Far-sighted refiners feel that fuel oil supplies available for sale as fuel will be still further curtailed and will command higher prices in relation to crude, but will always be substantially below gas oil in price—mainly because there will always be about three

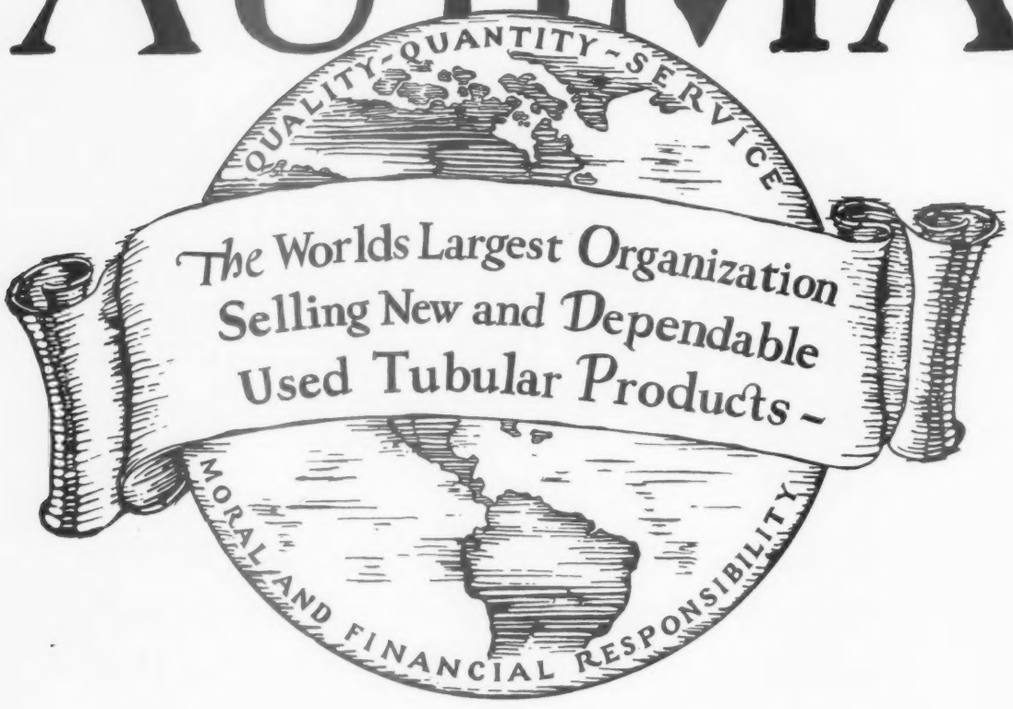
times as much fuel oil as there is gas oil in each barrel of crude

This definite trend only serves to emphasize the advantage of using the Dubbs Cracking Process

But if you must *temporarily* crack gas oil, do it at lowest cost per gallon of gasoline with the Dubbs Process

Universal Oil Products Company
Owner of the Dubbs Process
310 South Michigan Ave
Chicago, Illinois

TAUBMAN



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We operate the most modern equipped pipe shops in charge of experienced and responsible workers, located at Phillips, Texas, in the Panhandle district, Tulsa, Oklahoma, and El Dorado, Kansas.

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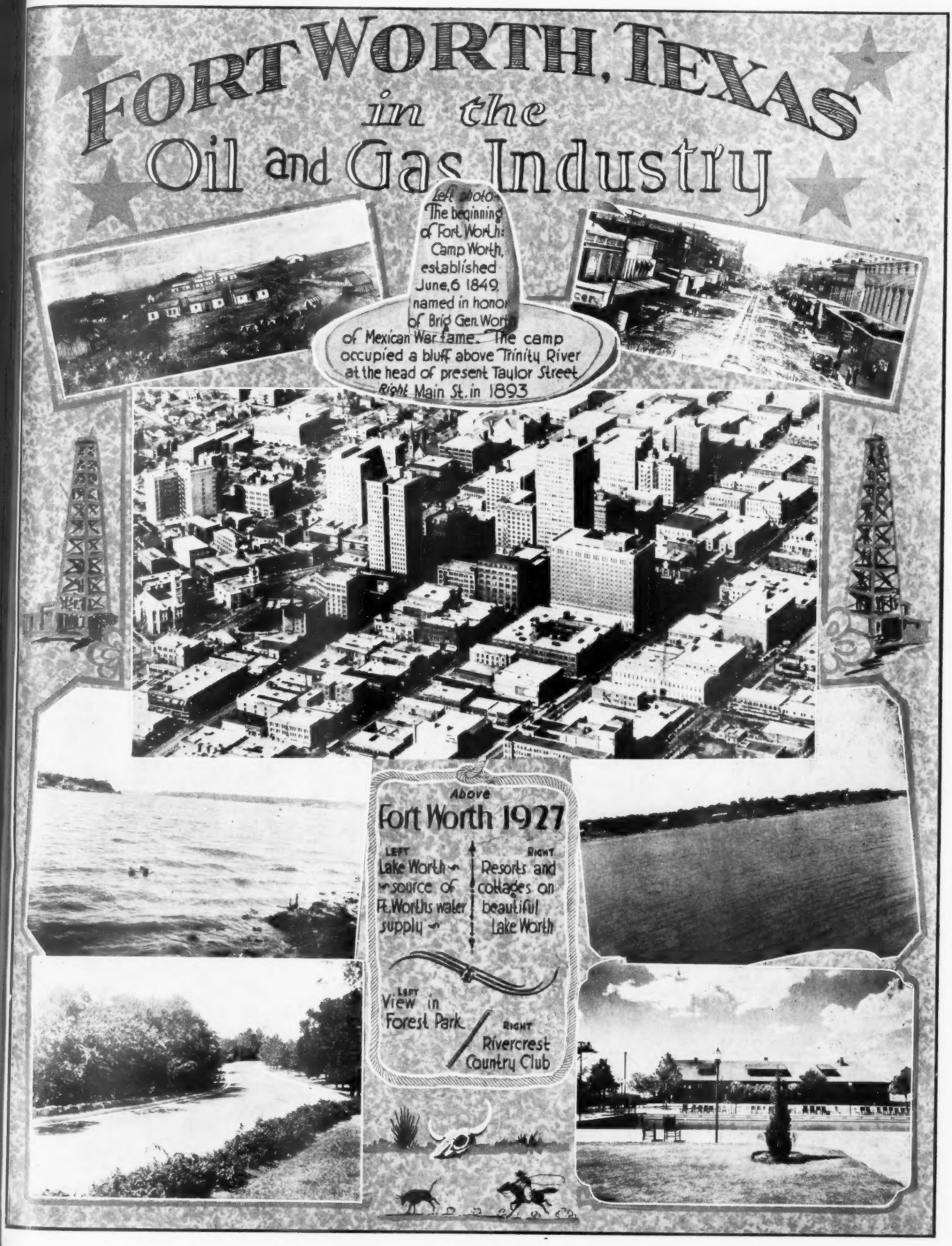
FORT WORTH, TEXAS
in the
Oil and Gas Industry
Left photo
The beginning of Fort Worth: Camp Worth, established June, 6 1849, named in honor of Brig Gen. Worth of Mexican War fame. The camp occupied a bluff above Trinity River at the head of present Taylor Street.
Right Main St. in 1893
Above
Fort Worth 1927
LEFT
Lake Worth — source of Ft. Worths water supply —
RIGHT
Resorts and cottages on beautiful Lake Worth
LEFT
View in Forest Park
RIGHT
Rivercrest Country Club

A Strong Bank Thoughtfully Managed

Fort Worth— strategically located for the transaction of business in all of the Oil Fields of the Southwest.

Continental National Bank— the bank that you hear frequently referred to as "The Oil Bank in Fort Worth."

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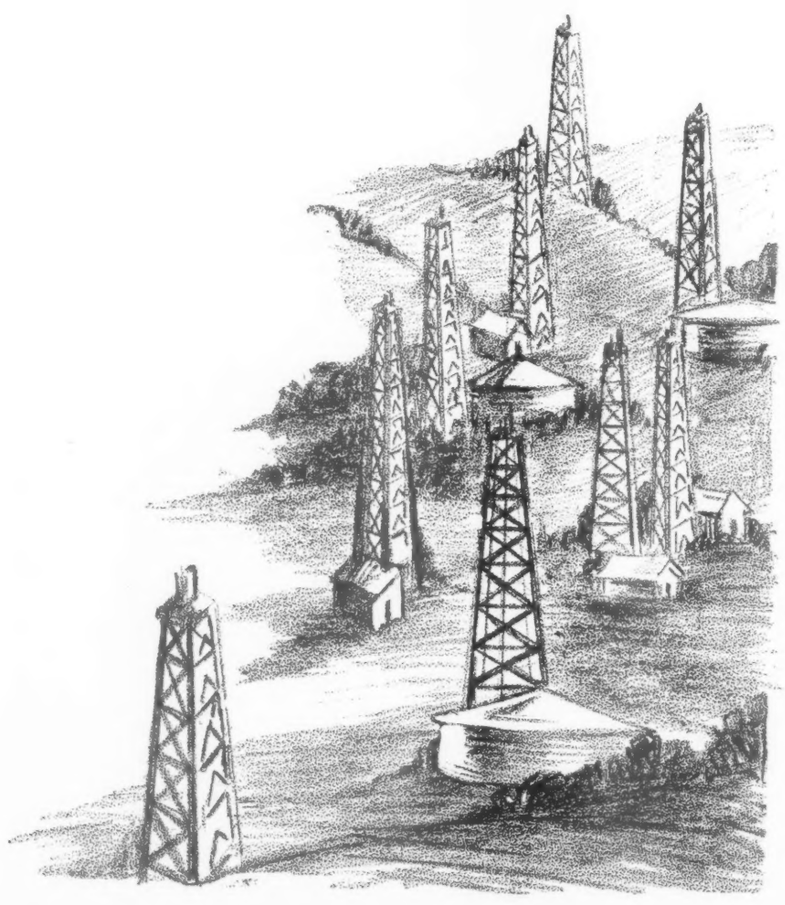


Fort Worth Capital of a New Empire

Remarkable Recent Growth in Population and Importance. Great Building Program Is Under Way

By Roscoe Ady
Industrial Commissioner, Fort Worth Chamber of Commerce

An increase in population of 85,185 between January 1, 1920, and January 1, 1927, is the record set by the city of Fort Worth. The 1920 census credited Fort Worth with a population of 106,482. A careful survey on January 1, 1927, showed 191,667, a gain of 80 per cent. Long before the present year has ended Fort Worth will have passed the 200,000 mark.

The Magnolia Gas Co. is laying a pipe line from Orange County, Texas, to Fort Worth, which will bring to the city an almost unlimited supply of gas for industrial purposes. The completed project will cost $10,000,000. A rate of 17 cents per 1,000 cubic feet will be made to industries. This cheap fuel and the greatly reduced rate for industrial water recently inaugurated by the council will be important factors in increasing Fort Worth's already impressive lead as a manufacturing center.

19 Railroad Outlets

One of the principal factors entering into Fort Worth's industrial supremacy has been her railroad facilities. Twelve trunk line railroads with 10 outlets provide the city with almost ideal facilities for distribution. However, Fort Worth has suffered for the lack of a direct line connection with the vastly rich Plains territory of west Texas. This handicap is now being overcome by the construction of the Fort Worth and Denver's extension westward from Estelline to Plainview, Lubbock and Dimmitt.

A few days ago the Texas & Pacific Railroad Co. let the first contract on its new yard and shop project at Fort Worth, which involves a total expenditure of $5,000,000 and which will mean at least 1,000 additional shopmen will be brought to Fort Worth upon its completion.

Plan $15,000,000 Union Station

Early in March a committee consisting of the chief engineers of the 10 principal rail lines entering Fort Worth made its report to the executives of these roads on a proposal for a new belt line and union passenger station at Fort Worth which will cost approximately $15,000,000. Most of the executives present approved the plans as submitted but final action was deferred for 30 days to enable others to study the plans more carefully.

Something more than a year ago Jesse H. and John H. Jones of Houston began buying central business property and have acquired 10 valuable sites. An 18-story Medical Arts Building, the Worth Hotel, also an 18-story structure, and a large theater for the Publix Theaters Corp., are now under erection. The Jones interests have plans for other large buildings.

R. O. Dulaney and J. P. Johnston, both successful oil operators, are building a 14-story office building to accommodate the many oil companies which are establishing offices in Fort Worth. Two other groups of oil operators have recently purchased two other central business corners which will be improved with large buildings. The Southern Union Life Insurance Co., a Fort Worth institution, has purchased a site 100 by 125 feet in dimensions in the very heart of the business district on which a 20-story office building will be built just as soon as existing leases expire.

Two new hospitals and additions to two others are under construction and involve a total expenditure of $2,000,000.

Mammoth Amusement Park

At Lake Worth, 5 miles northwest of the city limits, a hotel, casino, board walk and amusement park are under construction at a cost of $1,500,000.

For a year past new homes have been completed in Fort Worth at the rate of about 300 per month and they are being filled up as rapidly as they are completed. In a single month recently the gas company made more than 700 new connections.

The 1920 census of manufactures showed that Tarrant County, of which Fort Worth is the county seat, produces more than $155,000,000 worth of manufactured products annually. This sum is more than $39,000,000 greater than the total for any other county southwest of Kansas City.

Petroleum Gains on Packing

While packing house products rank first in value, petroleum products make a strong second and the value is increasing rapidly. There are five active refineries running approximately 50,000 bbls. of crude daily. They represent an investment of approximately $15,000,000, almost half of which has been spent in the past three years. Within that period the Transcontinental Oil Co. has built a new cracking unit and a complete lubricating and wax plant. The Texas Pacific Coal & Oil Co. last year purchased the Montrose refinery, installed a lubricating plant and new cracking unit. In 1925 and 1926, the Gulf Refining Co. spent approximately $2,000,000 on additions to its plant. The Magnolia Petroleum Co. is now building a large addition to its Fort Worth refinery. Additions have also been made recently by the White Eagle Oil & Refining Co. and the Star Producing & Refining Co. The Pierce Petroleum Corp. owns a plant at Fort Worth which has been inactive for several years.

Fort Worth has several large manufacturing plants making oil field supplies among the number being the Texas Steel Co., F. W. Axtell Manufacturing Co., Fort Worth Well Machinery & Supply Co., manufacturers of the widely-known "Fort Worth Spudders," and several smaller concerns. The American Manufacturing Co. of Weatherford, Tex., now has under construction at Fort Worth a new plant which will cost $300,000 and will employ approximately 200 men. This company makes 40 different items of oil country equipment and sells its products in practically every field west of the Mississippi.

More than 30 concerns dealing in oil field supplies are located at Fort Worth and recently many new companies in this line have been coming in.

Fort Worth is almost unique, and is certainly peculiarly fortunate in the fact that it is dependent on no one industry. It is the largest live stock market and the principal packing center of the South. It is the largest terminal grain market and the only primary grain market in the South. It is situated in the very heart of the greatest cotton-producing area in the world.

The 1920 census of manufactures discloses the fact that the five principal raw materials entering into American manufactures are meat animals, petroleum, iron ore, cotton and grain. Fort Worth's preferential trade territory in west Texas produces all of the commodities, with the exception of iron ore to the value of more than $125,000,000 annually.

It is conservatively estimated that the population of west Texas has increased by more than 750,000 in the past six years. More than 60 ranches of from 10,000 to 500,000 acres in area have been subdivided into farms. Considerably more than one-third of the new railroad construction now under way in the United States is in west Texas.

It is this consistent growth in her trade territory that is building Fort Worth. There is no "boom." The rapid development now under way is merely the logical outcome of the development in the territory served by the city.

The growth of Fort Worth as a grain market has been phenomenal. It is now the recognized market for Texas, Oklahoma, New Mexico and parts of Kansas and Nebraska. In the past four years the grain storage capacity at Fort Worth has grown from 6,000,000 bushels to more than 12,000,000 bushels. Receipts for 1926 were 34,684 cars as against 26,741 cars in 1925, a gain of 30 per cent.

Fort Worth's Romantic History

Fort Worth has had a romantic history. At the close of the Mexican War, Gen. Winfield Scott sent a troop of the Second Regiment of Dragoons commanded by Maj. Ripley Arnold to north Texas to establish a post to protect the settlers from the Indians. On June 6, 1849, the post was located and named Camp Worth, in honor of Brigadier General Worth. On November 14, 1849, the name was changed by the War Department to Fort Worth. In September, 1853, the troops were withdrawn.

Meanwhile a small trading post had grown up around the fort. Tarrant County was created by act of the Legislature in 1849, and in 1860 Fort Worth was designated as the county seat. War depleted the population but at the close of the great conflict the homecoming veterans brought with them many of their comrades from the armies of Jackson, Beauregard and Lee.

Fort Worth became an important post on the cattle trails leading from the great ranges of Texas to the rail heads in Kansas. Yet the growth was slow. In 1873 the Texas & Pacific Railroad Co. started building west from Marshall and this occasioned a temporary boom. However, the failure of Jay Cooke & Co. resulted in the suspension of construction while the rail head was still 25 miles east of Fort Worth. It was not until July 19, 1876, that Fort Worth heard the first whistle of a locomotive.

But the long strain of waiting for a railroad had impressed the importance of transportation facilities upon the citizenship. A determined effort to have the other lines then building in the Southwest was made. Cash bonuses amounting to more than $500,000 and land grants worth many times that amount were provided by the citizens. Through this method Fort Worth secured the 12 trunk line railroads that now make her the most important railroad center of the Southwest.

Coming of the Packers

In 1902, the Swift, Armour and Libby, McNeill & Libby packing houses were located at Fort Worth. They constituted and still remain the most important industrial group in the Southwest. Numerous allied and auxiliary plants sprang up around them and Fort Worth began to forge forward as a manufacturing city.

While Forth Worth has prospered and grown in an industrial and commercial way, the finer things of life have not been neglected. Few cities of her size have an equal mileage of improved streets and nine paved highways radiate from the city. In addition to Lake Worth with its wonderful bathing, boating and fishing, Fort Worth has 35 other parks with a total area of 40,000 acres. Swimming and wading pools, a large municipal zoo, baseball and football grounds, tennis courts and bridle paths are provided. The city maintains an excellent 18-hole golf course and three country clubs also have 18-hole courses.

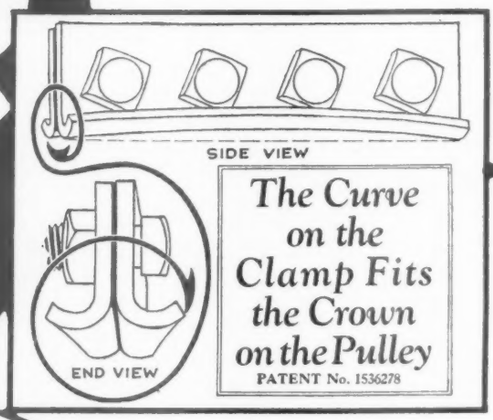
Fort Worth has 151 churches, many of them housed in magnificent buildings. Institutions of higher learning include Texas Christian University with an enrollment of 1,400, Southwestern Baptist Theological Seminary with an enrollment of 750; Texas Woman's College with 500 and Our Lady of Victory College and Academy with 350.

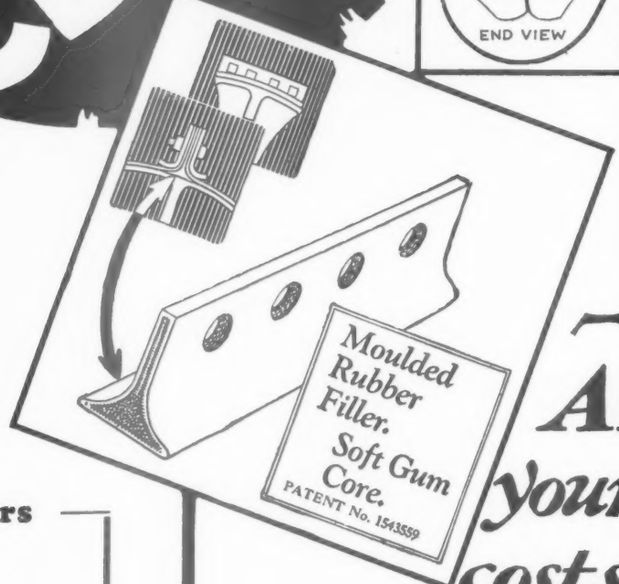
A recent gift to the Texas Christian University from Mrs. Mary Coutts Burnet was appraised at $4,100,000. However as part of the estate consists of lands in the Texas Panhandle near present oil fields it is hard to estimate the real value of the gift. Recently a tract of land which had been appraised at $10 an acre was sold for $500 an acre.

Fort Worth's public schools are excellent but have been overcrowded. However, with buildings costing nearly $3,000,000 now being completed rapidly this situation is being satisfactorily relieved.

TEXAS CHRISTIAN UNIVERSITY AT FORT WORTH

FEDERAL BELT CLAMP





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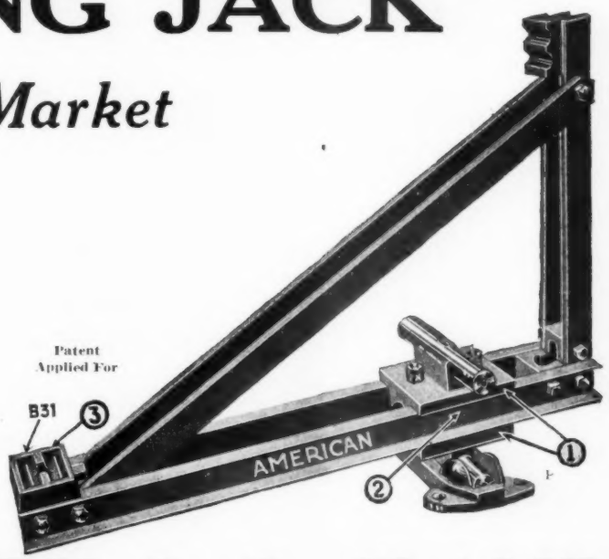
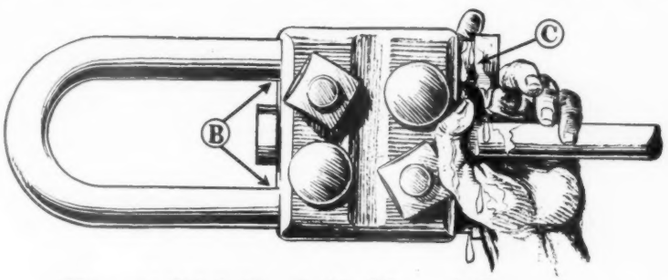
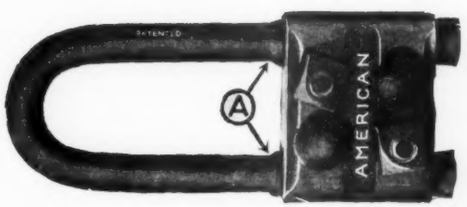


AMERICAN SAFETY C. C. CLAMP



The "Old Style" Hand Crusher

For a number of years the old style C. C. Clamps have been used, which have caused numerous accidents, in the Pumper having his hand or fingers caught between the head of the U Bolt and the clamps as shown at "C." In many instances the finger has been broken or crushed very badly.



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The Gateway to Great Oil Fields

Fort Worth Chosen by Large Oil Companies as Operating Headquarters. Directly in Touch With Important Areas

By James McIntyre

Fort Worth made no special effort to become the headquarters city of the Central and West Texas oil fields; it just naturally became so. The oil industry elected it because of its convenient location, its size, its progressiveness and its housing accommodations, but particularly because its railroad transportation facilities reached out directly to every part of the State where oil might be expected to be found. It is in truth the gateway to the oil country—to any oil region in the Mid-Continent part of Texas.

Until recent years the Texas oil fields lay principally in the Gulf Coastal region, with the exception of the old shallow Corsicana Field and scattered small pools in North Texas. Less than 10 years ago marked the beginning of the big oil discoveries in North and Central Texas, starting with the Ranger and Burkburnett Fields. Then the oil movement to Fort Worth began, and large and small oil companies opened offices there and directed their operations from that city. Now such large companies as the Amerada Petroleum Corp., J. S. Cosden, Inc., Deep Rock Oil Co. (Shaffer Oil & Refining Co.), Gulf Production Co., Independent Oil & Gas Co., Marland Oil Co. of Texas, Manhattan Oil Co., Phillips Petroleum Co., Philmack Oil Co. (Waite Phillips and associates), Sinclair Crude Oil Purchasing Co., Skelly Oil Co., Snowden & McSweeney, The Texas Company, Texas Pacific Coal & Oil Co., Tidal Oil Co., White Eagle Oil & Refining Co., all companies that operate in more than one state, have divisional headquarters in Fort Worth, while a long list of purely Texas companies and firms and individual operators make their headquarters there. The Magnolia Petroleum Co. and the Roxana Petroleum Corp. are seriously considering moving their land departments from Dallas to Fort Worth to be in closer touch with leasing operations.

Divisional Headquarters

These divisional headquarters in all cases include the land and leasing departments and in most cases production, geological and engineering departments. Whole floors in some of Fort Worth's largest office buildings are occupied by oil companies of nation-wide importance. Here large purchases and sales of properties are consummated and final judgments are passed on leasing and drilling operations. Some of the ablest oil men in the Mid-Continent are in charge of Texas operations with headquarters in Fort Worth and their judgment has a far-reaching effect on operating policy in Texas, where it does not altogether fix the policy. While the live stock industry and meat packing continues to lead and to dominate Fort Worth, as a matter of fact in the heart of the downtown business district one hears little of beef, but much of oil in the places where men congregate in hotel lobbies, banks and office buildings. The oil business has fattened the bank deposits, and built most of the great commercial structures that have given Fort Worth its imposing skyline. Fort Worth business men are alive to this and appreciative of the metropolitan spirit that came with the oil men and the riches the oil men took from the earth. Ranchmen and farmers made wealthy by oil royalties have built beautiful homes by the score in Fort Worth and some of them have freely given of their wealth for the civic and industrial betterment of the city. Oil increased the hotel accommodations, helped to erect the magnificent Fort Worth Club, improved the highway system and greatly increased both the permanent and transient population—and the flood of prosperity is just beginning.

The greater the North Central and West Texas oil region becomes in the same degree will Fort Worth grow in importance.

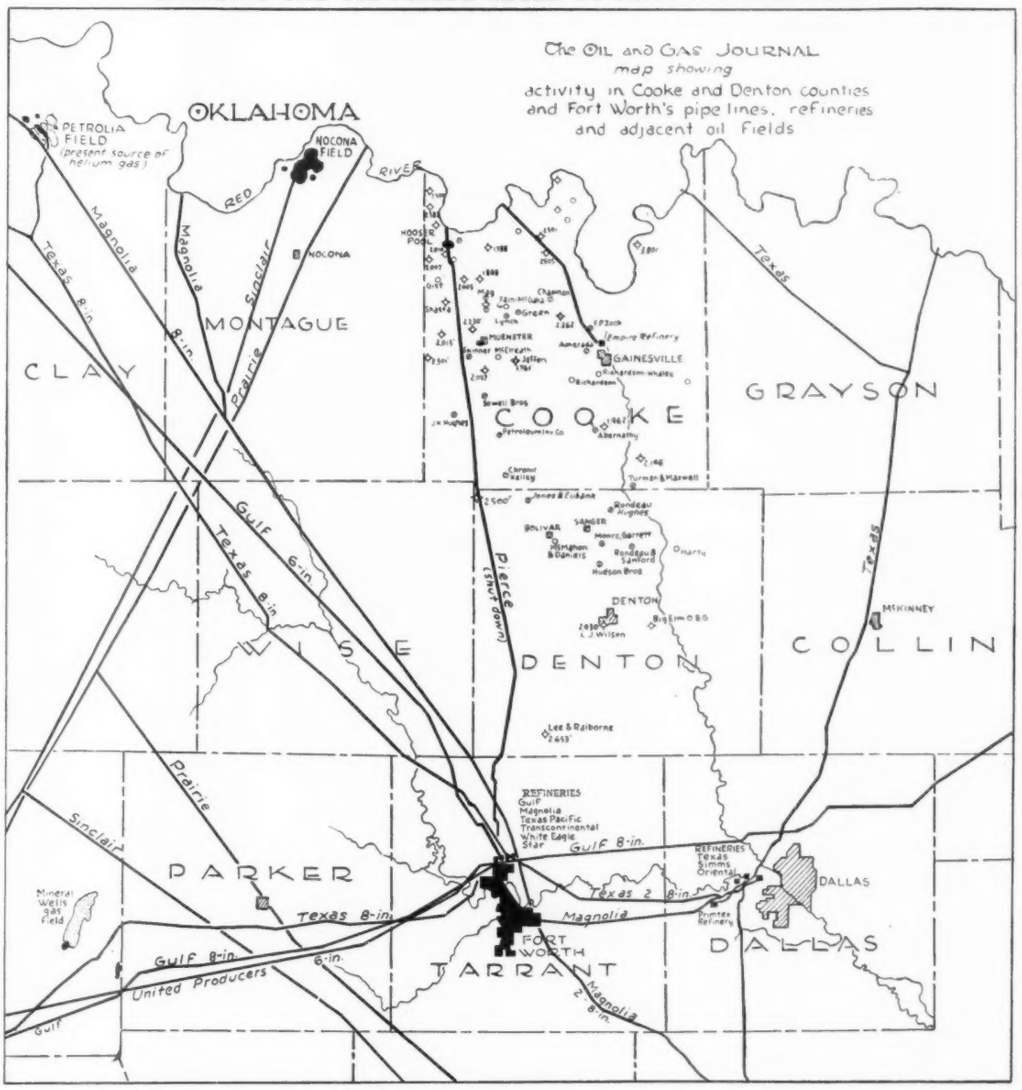
It is interesting to sketch the causes leading up to the establishment of Fort Worth as an oil center of the West Texas region. For 50 years or more it had been the live stock metropolis of the Southwest. Ranchers and farmers looked upon it as their London, New York and Paris. It was their buying center and the place to which their steps were bent on pleasure or big business.

Ranch Owners Interested

Years before there was any serious thought of West Texas as a potential oil country the ranch owners in that part of the State became possessed of the idea that their land must be underlain with oil. They knew nothing about geology or the elements that go to make up an oil-bearing region, but they could see no reason why the properties owned by them differed in the least from properties owned in Wichita, Eastland or other counties then in the limelight. So they sought out a market for their leases and went to Fort Worth to look for "oil men." Western lease owners have been doing it ever since, whether they are ranchers or professional dealers in leases. To them Fort Worth is the exchange to which they should bring their wares, and oil companies seeing this natural gravi-

(Continued on Page 94)

BRINGING THE OIL FIELDS CLOSE TO FORT WORTH'S DOOR

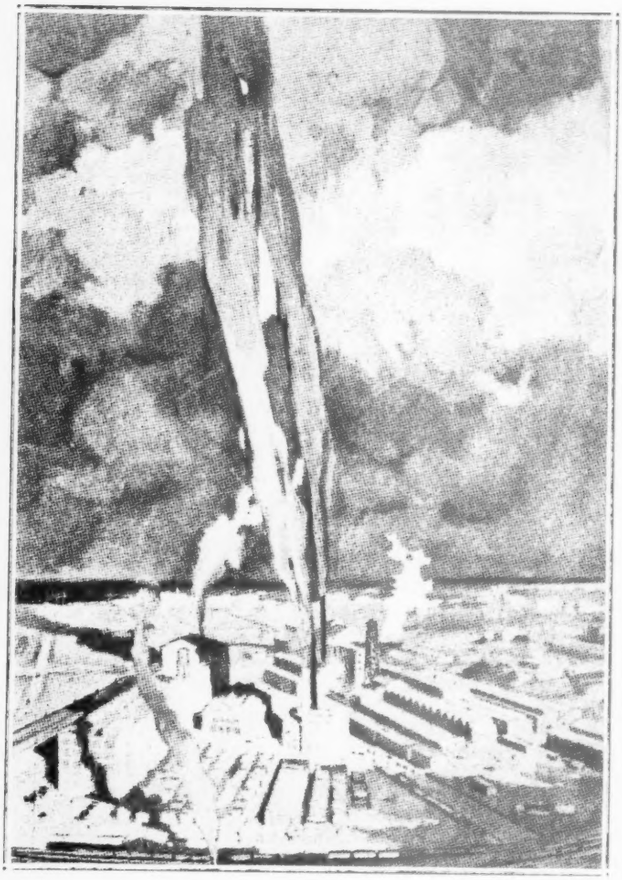


It being quite out of the question to move Fort Worth closer to the oil fields, the oil man had no other recourse than to bring the oil fields nearer to Fort Worth. This was done within the past year when Cooke County, north of Fort Worth was brought into the oil column, which started a wildcatting campaign all over that county and extending down into Denton County, which is even nearer the headquarters city.

Until the past year, the closest actual petroleum production was located in Palo Pinto County about 60 miles to the west, while the Ranger Field represented the closest area of importance, and it is situated 100 miles away.

Some drilling has been done between these fields and Fort Worth, some in fact is still going on in Parker County which is the county just west of Tarrant, in which Fort Worth is situated. But the industry has never regarded the area in that direction as very promising. If oil were to be discovered in Parker County it would upset the theories on which development campaigns have been mapped out for the past 6 or 7 years. That has been done before, of course, and it may happen in this case.

To the north and northwest, the Nocona Field of Montague County was the closest production at a distance of approximately 75 miles until John Hooser and C. C. Lanier uncovered some good shallow oil in Cooke County. Their first test would have made a well early in April, 1926, but trouble with the hole caused the showing to be passed up and this test was carried down below 2,100 feet where it was abandoned in July. In the meantime, another well was drilled



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and it was good for approximately 150 bbls. at 1,248-53 feet.

Wildcatting Draws Near

The drilling campaign which followed this discovery has extended all over Cooke County and down into the north half of Denton County, bringing the wildcat play close to Fort Worth. The discoverers of the Hooser or Bulcher Pool sold out to the Kewanee Oil & Gas Co. for 850,000 early this year. Another pool has been discovered in the little German settlement of Muenster, and 30 additional wildcats are seeking further extensions of the producing area, as shown on the accompanying map. Seven tests are also underway in Denton County and one in Grayson County.

The Muenster Pool was discovered by Lynch, Stahl & Burress, Oklahoma operators, on September 13 last year. Their discovery well was No. 1 Danglemeier which was located just outside the townsite and which produced about 60 bbls. initial from sand at 897-903 feet.

The shallow depth of the sand in both of these pools with the accompanying small cost of drilling and the excellent character of the production has kept the wildcatters busy looking for similar spots. Due to the character of the country, too, operators are expecting to find some considerably better pools than those at Bulcher and Muenster.

FORT WORTH IS THE GATEWAY TO OIL FIELDS

(Continued from Page 93)

tation to Fort Worth moved their land and leasing departments to that city to have a first opportunity of buying anything that looked good.

Some of the leases in Western Texas that are now bringing large prices went begging a few years ago at 2 cents an acre, plus a nominal rental, with a 10 and even 15-year limit in which to drill. The whole of Pecos County, the writer is told, could have been leased on such liberal terms, and now it promises to be one of the Mid-Continent's greatest fields. Something like the same could be said of opportunities that were passed up in Winkler and Ector Counties which are regarded in some circles as coming great fields. At that time they along with Reagan, Crane and Upton Counties were considered off the earth—too far away to be worth bothering about when there were nearer counties in which the conditions were better known and the opportunities appeared more favorable. Fort Worth was alive with opportunities to buy western leases in the height of the Burkburnett and Ranger booms, and now many a man who could have invested, with only a comparatively small amount of money at hazard, kicks himself.

But now all this is changed. Pecos County, which seemed as far away as the planet Mars eight years ago is now just a traveling incident. Distance means little to a Texan and it does not take long for an outlander to share the Texas man's contempt for it. With excellent night train service one can reach any Central or West Texas oil center in a night's ride. With the loss of little if any time, so far as business hours are concerned, one can reach these far western oil fields as quickly as if they were located at Fort Worth's door. The railroad outlets to the Western fields include the Rock Island, Fort Worth & Denver, Texas & Pacific, and the Fort Worth & Rio Grande, all of which, directly or through a connection pass through the territory included in the Fort Worth oil zone.

Growth of the Fields

In 1926 the Ranger-Eastland district produced 7,959,025 bbls.; Brown County, 3,596,033 bbls.; Callahan County, 1,469,921 bbls.; Coleman County, 478,522 bbls.; Throckmorton County, 305,479 bbls.; Jack County, 85,975 bbls.; Jones County (opened in the late fall), 50,871 bbls.; Palo Pinto County, 202,732 bbls.; Shackelford County, 2,840,429 bbls.; a total for the Central Texas area of 17,074,471 bbls. The West Texas area produced a total of 14,966,808 bbls., of which Regan County contributed 10,975,135 bbls.; Crane-Upton, 2,218,292 bbls.; Mitchell, 1,272,432 bbls.; Crockett, 372,019 bbls.; Howard, 100,915 bbls. the remainder having been divided among Winkler, Scurry, Garza, Loving and Pecos Counties. The Panhandle Field which is operated out of Fort Worth by some of the companies in that territory produced 25,545,197 bbls. and the North Texas area which is immediately available to operators quartering in Fort Worth produced 34,328,306 bbls. The total production of the vast territory to which Fort Worth may well lay claim as being the eastern gateway was 91,829,295 bbls. last year, a gain over the year before of 37,141,914 bbls. The production in the whole territory above set forth covering a period of several years was as follows: In 1923, 45,043,070 bbls.; 1924, 44,624,892 bbls.; 1925, 54,687,381 bbls.; 1926, 91,829,295 bbls. This territory is expected to pass the 100,000,000 bbl. mark long before the close of this year. The production growth in the past year has been most remarkable. A comparison between the crude oil output in March, 1927 and the same month last year will show this. In March last year the North Texas Field averaged 92,500 bbls. a day. This is the oldest of the producing territories in the Fort Worth zone, but the new discoveries last year and thus far this year have increased production there well above last year's level and this month finds it averaging close to 101,500 bbls. The Central Texas territory, which was once confined in importance to the Eastland-Ranger district is now spread over a wide expanse of counties and its production of 37,350 bbls. a day last March has been increased to 69,000 bbls. The West Texas fields outside of the Big Lake Field in Reagan County, were of minor importance a year ago, and their combined production in March, 1926, averaged only 33,333 bbls. a day, of which Big Lake supplied 29,478 bbls. The same territory this year is producing 92,000 bbls. a day. The Panhandle fields averaged 7,900 bbls. a day last March and were producing 127,000 bbls. a day when this was written.

Field in Its Infancy

The development of the petroleum fields in Texas is yet in its early stages. The possibilities of the great western country, including an area as large as that of New York, Pennsylvania and Ohio combined, are yet only optimistic dreams in the minds of men, but the consensus of geological and engineering opinion as well as that of the old-fashioned practical oil men is that America's greatest oil possibilities in the near future lie in the western half of the State of Texas, and no county from the Oklahoma Panhandle line down to the Mexican border is altogether excluded. At this time only 11 out of 90 counties are without either production or exploratory drilling operations in the West Texas and Panhandle fields.

In Central Texas the development is so keen that there was more drilling on March 1 than on November 1, 1926, before the first of the recent series of market price reductions was put into effect. Brown County and Shackelford County led last year in the discovery and development of new pools and at this writing there are 118 drilling operations in Brown and 64 in Shackelford. In West Texas, Crane, Upton, Howard, Winkler, Garza and Loving were added to the list of producing counties. There were 740 wells drilling in the North Central and West Texas areas when this was written. The Panhandle Field showed 366 drilling operations. The figures in either case do not include rigs up where no drilling has been started.

Attractive to Smaller Operators

Fort Worth's rapid growth as an oil center, especially during the past year or two, reflects the changing conditions of exploration for oil in the Mid-Continent. The Fort Worth territory is ideal for the smaller operating company and individual, because of comparatively low drilling costs, due to the shallow depths of most of the wells, and the comparatively low price of acreage, due to the

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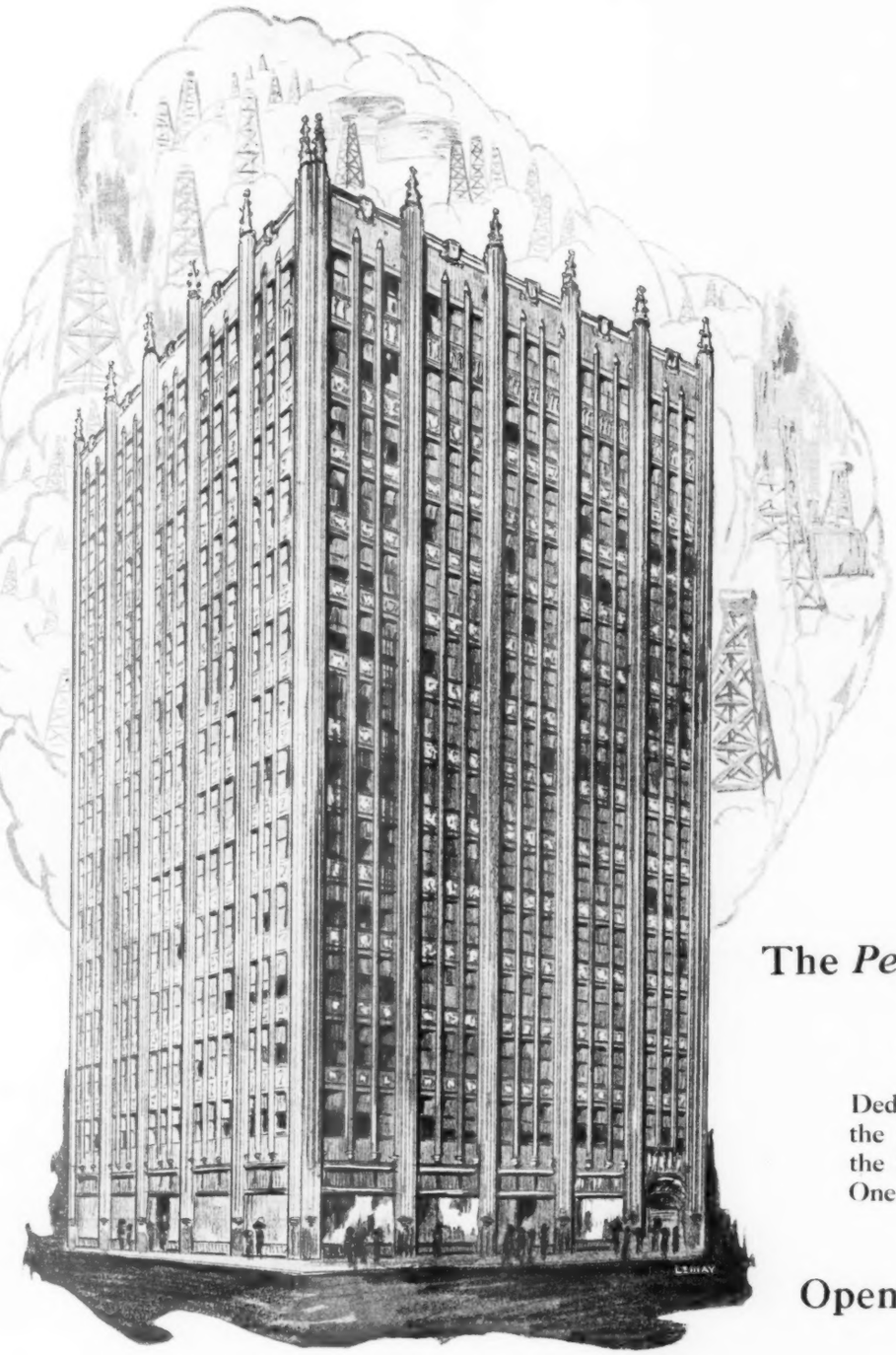

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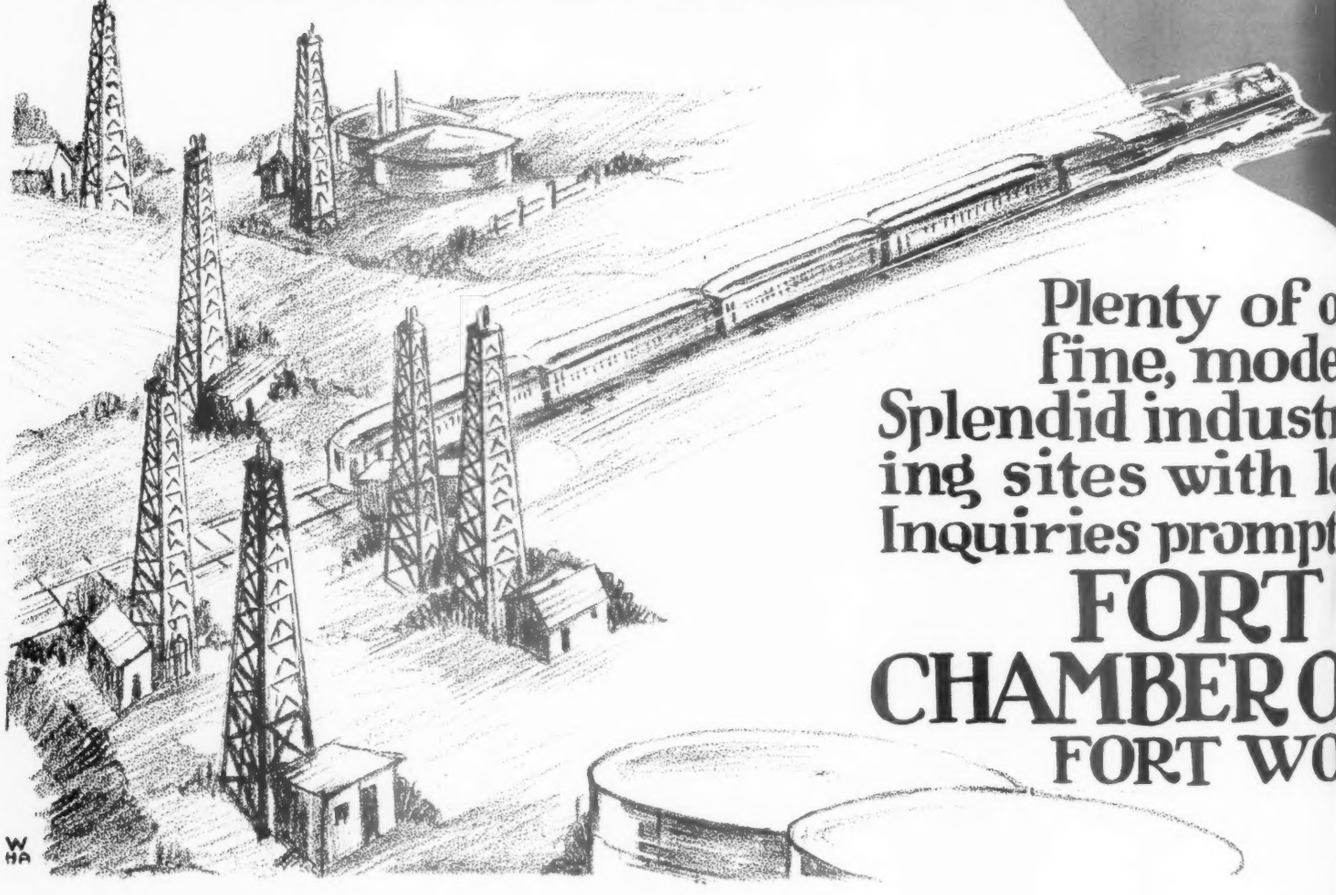

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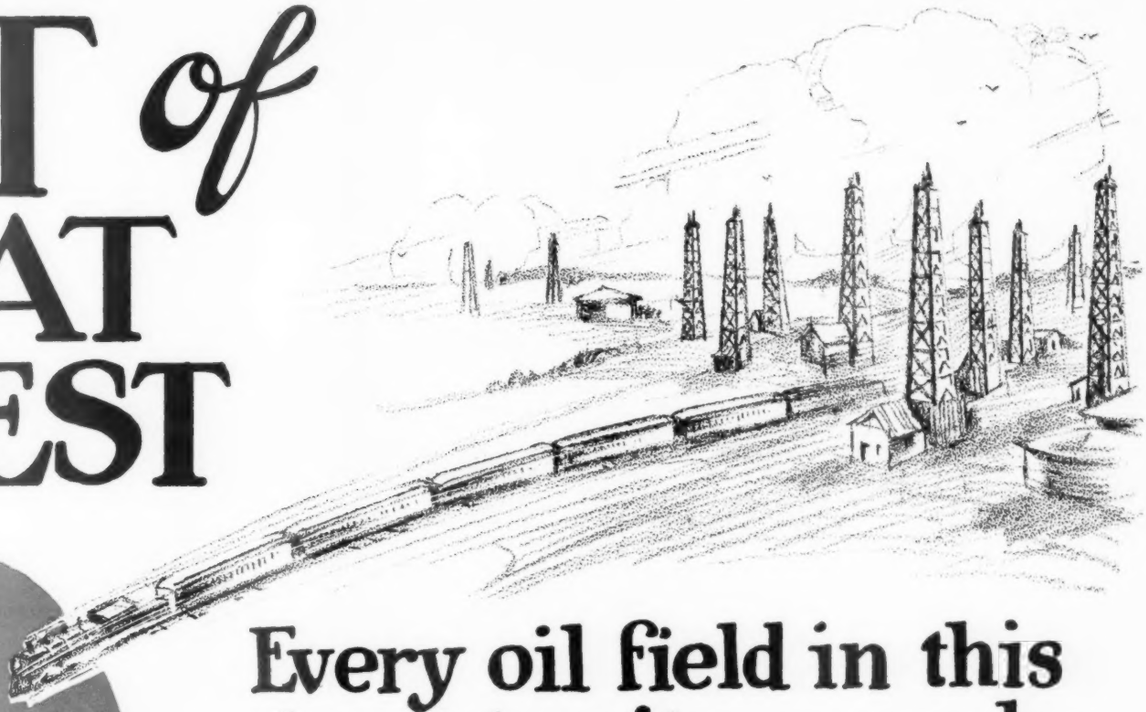
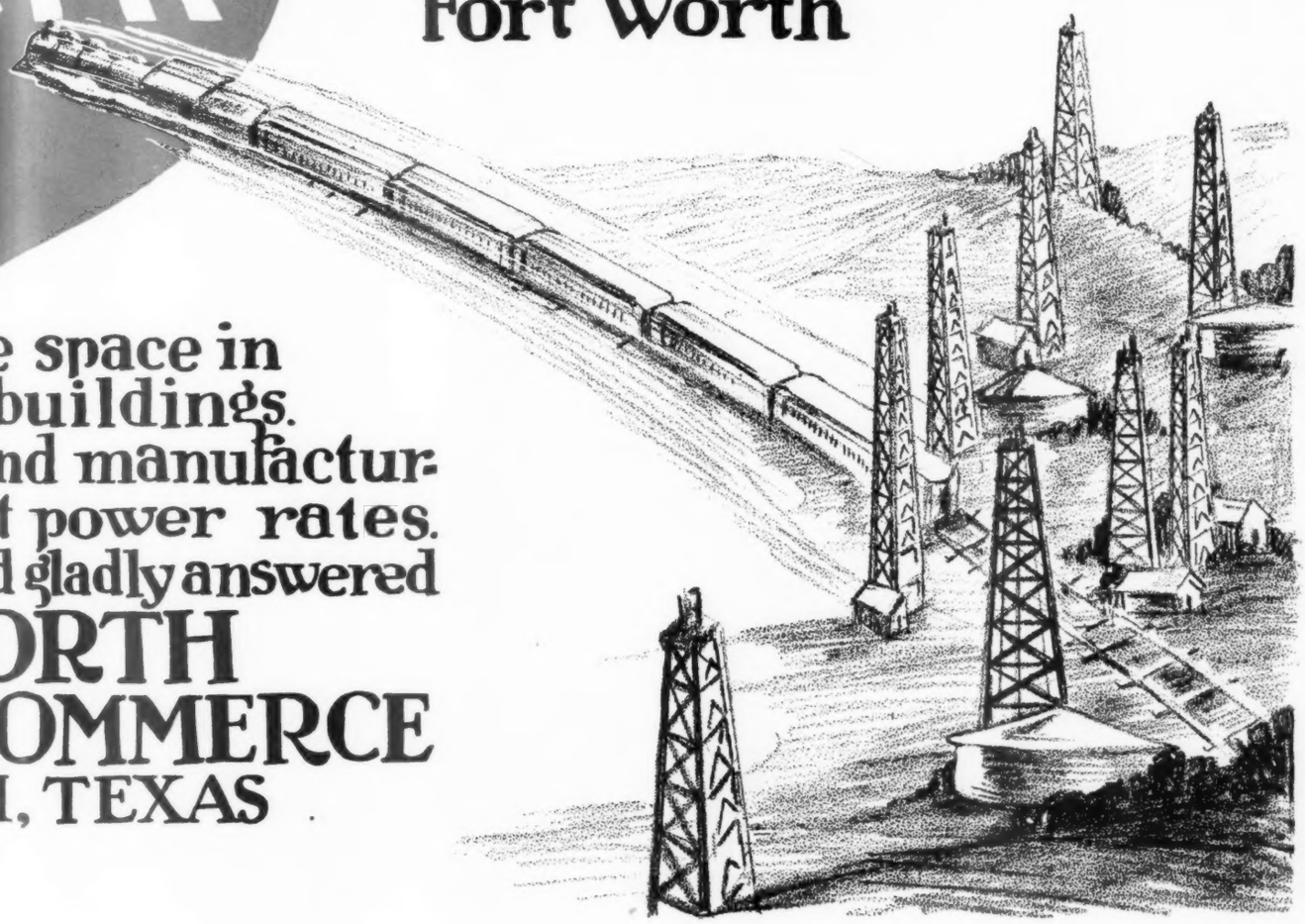


Every oil field in this great territory may be reached overnight from Fort Worth



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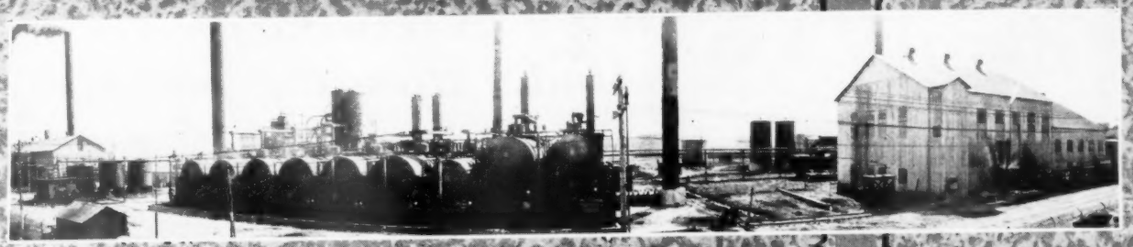
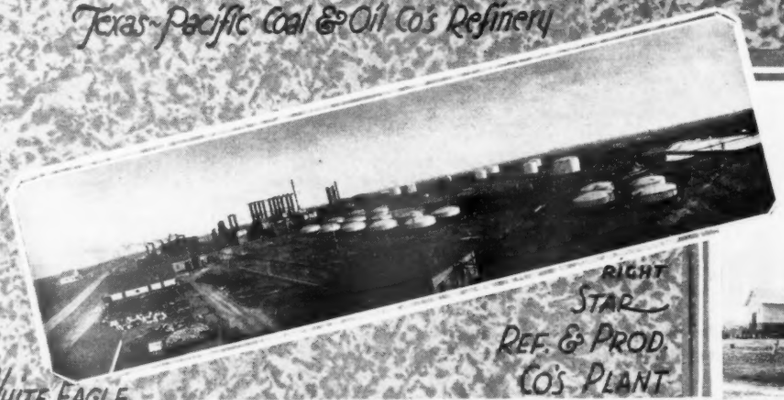
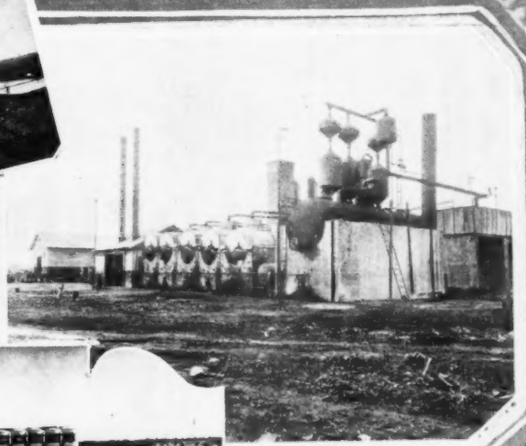


Texas-Pacific Coal & Oil Co's Refinery

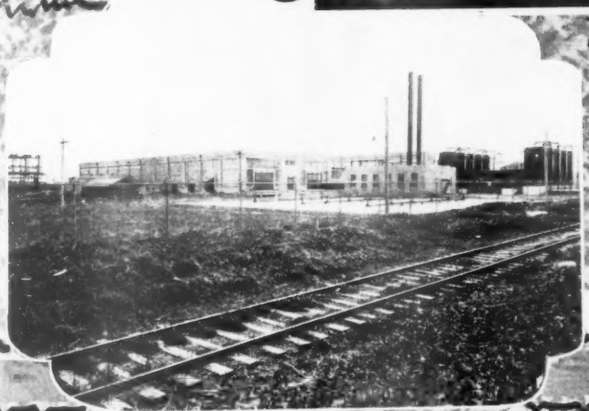


RIGHT STAR REF. & PROD. CO'S PLANT

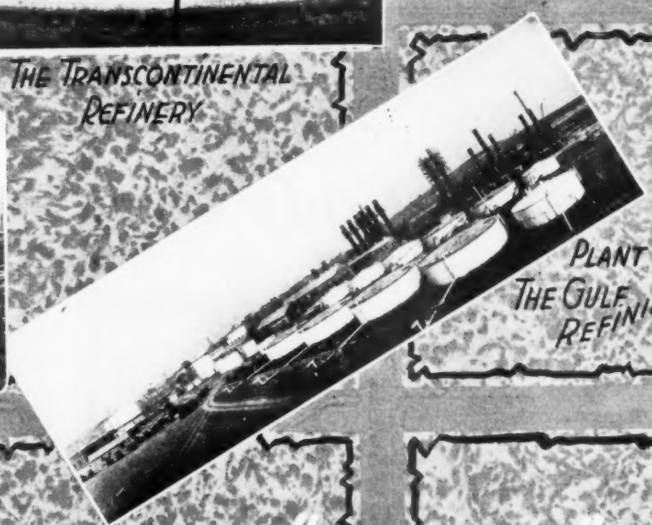


WHITE EAGLE OIL & REFINING CO'S PLANT

THE TRANSCONTINENTAL REFINERY



UNITED STATES HELIUM GAS PLANT

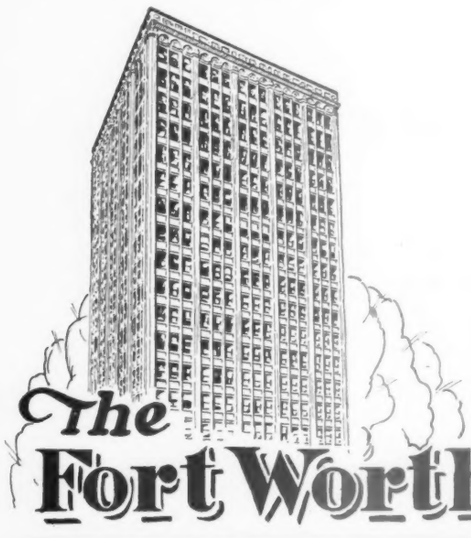


PLANT OF THE GULF REFINING CO.

FORT WORTH has many Refineries

MAGNOLIA PETROLEUM CO'S PLANT

United States Depositary



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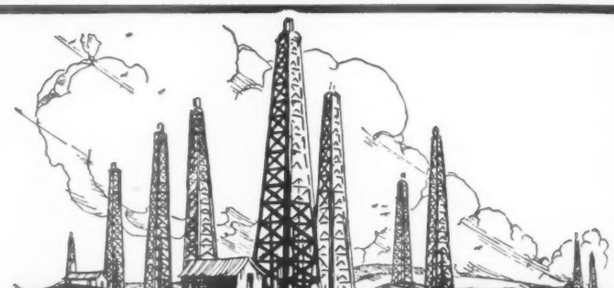

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SCHEDULE

Read Down GOING				Read Up RETURNING	
1:15 P.M.	9:00 P.M.	Lv.	Dallas	Ar. 5:05 P.M.	8:30 A.M.
2:40 P.M.	10:40 P.M.	Lv.	Ft. Worth	Ar. 3:40 P.M.	6:30 A.M.
12:28 A.M.	10:58 A.M.	Ar.	Midland	Lv. 6:15 A.M.	6:56 P.M.
1:00 A.M.	11:33 A.M.	Ar.	Odessa	Lv. 5:40 A.M.	6:20 P.M.

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FORT WORTH IS THE GATEWAY TO OIL FIELDS

(Continued from Page 94)

immensity of the area in which production has already been obtained or which looks favorable for development. Moreover, the tests can be drilled in a short time and wildcatters can get a quick turnover. All of their eggs are not in one basket—unless they have mighty few eggs—and if a structure is barren they can find it out and move on to another likely-looking spot while their contemporaries in other areas where deep drilling is necessary are scarcely more than half way to their objective.

These attractions have lured scores of individuals and small concerns from the restricted regions of other states into the vast open spaces of West Texas and the spacious shallow sand belt of North Central Texas for which Fort Worth is the gateway. Many of the smaller operators who desire to confine their activities to one particular region make their headquarters in one of the district centers.

Practically all of the more than 250,000 bbls. daily production now being produced in North and West Texas comes from depths less than 3,000 feet. A great majority of the 100,000 bbls. contributed toward this total by the Wichita Falls district has to be lifted less than 2,000 feet. Many Archer and northern Young County wells at less than 1,400 feet have flowed as high as 1,200 to 2,000 bbls. initially. Throckmorton County has some 4,000-foot oil but the county's total output is only 1,550 bbls. and the deep horizon has proved disappointing. Young County also has some 3,900 to 4,000-foot production in several places in the south half of the county, notably in the South Bend Field where a drilling campaign for this deep sand is now in progress. The old lime districts of Eastland and Stephens Countes which were the inspiration for the North Texas boom of 1919 and 1920, required drilling to 3,000 and 3,250 feet but Burkburnett's deepest oil gusher is only 1,750 feet below the surface.

The deepest commercial production in North and West Texas came from The Texas Company's No. 1 Arnold, south of Graham in Young County where 100 bbls. daily was obtained from 4,640-90 feet.

Shackelford County has some 3,550-foot oil in the Ibex Pool, along the Stephens County line but the bulk of Shackelford County's production during the past seven or eight months has come from 1,100 to 1,300 feet in the Cook Ranch Pool, where 1,200-bbl. initial producers are common. Brown County, likewise has some 2,500-foot crude in the Byrd Store Pool but the major attraction in that part of the country has been the prolific 1,200 to 1,400-foot high-gravity fluid in the Cross-Cut, Blake (or Dunn-Stover) and Fry Pools.

Among the famous old pools in this region were Pioneer at 2,450 feet, Desdemona at 2,750 feet and Sipe Springs at 250 to 600 feet. The Hilburn Pool's average was 3,100 feet.

The famous Dalton well in Palo Pinto County, which flowed 1,200 bbls. all by itself and has never had any near relatives, produced from 3,963-70 feet. The Roxana well in Jack County, which has flowed about 35 bbls. for several years and which is now the cause of another deep test nearby, has a depth of 4,600 feet.

Western Shallow Sands

In West Texas, too, most of the depths are extremely shallow compared to those in other areas where the initial production average is no greater. The outstanding example is the Yates Pool in Fecos County where one well has flowed more than 6,500 bbls. at 1,000 feet. The Chalk area of Howard County doesn't boast such spectacular production but has furnished 200 and 300-bbl. producers at 1,500 to 1,800 feet. The well-known 30-mile strip of pools along the Upton-Crane County line, where initial output has often amounted to several thousands of barrels and where one gusher flowed as much as 8,000 bbls. of 32 gravity crude, averages from 1,950 to 3,100 feet in depth. The total depth of the big well referred to, the Simms Oil Co. and Atlantic Oil Producing Co.'s No. 2 University-A, is 2,953 feet while the largest well in the Gulf Production Co.'s McElroy Pool in the same territory is 2,833 feet. Big Lake wells ranging up to 8,700 bbls. initial are a little less than 3,000 feet deep.

Winkler County's lone producer is flowing 420 bbls. daily from total depth of 3,036 feet. Ector County's first well is pumping 65 bbls. from a depth of 3,786 feet.

The Noodle Creek Pool of Jones County has contributed one well swabbing and flowing 1,800 bbls. from 2,510-16 feet and another, the discovery, which made better than 1,000 bbls. at approximately the same depth. Mitchell County is not noted for large initial producers but can boast of slow declines and its 40-bbl. to 200-bbl. pumpers at 2,850 to 3,100 feet are commercially valuable.

Deeper Production Expected

The fact that all of the present oil in the Fort Worth territory comes from depths no greater than those mentioned above does not diminish the prospects of deeper production. The vast extent of untested territory where comparatively shallow crude may be expected, however, has made excessively deep drilling unnecessary as a rule. There have been several deep tests throughout the territory which went below 5,000 feet but they were all located in wildcat places. The Marland Oil Co. is now engaged in an interesting deep test in the McCamey or Hurdle area of Upton County in its No. 3 Burleson which was a producer at 2,205 feet and at 2,295 feet and is now below 4,100 feet in search of a deeper oil-bearing stratum and geological information.

The Wichita Falls district is also receiving an interesting deep test. This is being drilled by the Continental Oil Co. in the old Texhoma-Gose Pool of northern Archer County and is scheduled to go to 5,000 feet if necessary. Oil men have often wondered what the possibilities for deep production in this region are but have been deterred from deep testing by the excellence of the 1,200 to 1,600-foot sands.

Uses Electric Steel In Its Sucker Rods—Other Field Supplies

The only steel mill in the Southwest which "rolls its own" electric steel and finishes it up into oil field equipment as well as other products, is located at Fort Worth. This is the Texas Steel Co. plant on Hemphill Avenue, one of the few mills west of the Mississippi River which actually makes everything from the steel itself to the finished product.

The Texas electric steel sucker rod is the principal item of equipment manufactured in this plant so far as the oil industry is concerned, although their list of oil field equipment includes casing heads, casing shoes, swage nipples, anchor clamps, shackle castings, bull plugs, turnbuckles, hold downs and swings, Texas improved pump jacks, hot rolled bars, steel castings and various other products.

The company is now preparing to market its electric steel sucker rods on a large scale after two years' trial in many wells. This, the company claims, is the only sucker rod on the market made of electric steel. The claim is also made that it has about 20 per cent greater durability than steel of the same analysis made by the Bessemer or open hearth processes because under the electric process the impurities can be controlled much more easily. Uniformity of the steel used in the rod is an advantage gained by this company because it makes all of its own steel.

A large amount of the reinforcing steel used in the Southwest is finished in this plant and the company also makes a specialty of difficult castings.

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Model	Weight App. Lbs.	Capacities Feet Drilling	Clean Out	Height Mast
"D"	18,100	2,250	3,500	42 ft.
"H"	15,800	2,000	2,500	40 ft.
"C"	14,200	1,500	2,000	38 ft.

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FORT WORTH OIL MEN TAKE PART IN DEALS RUNNING INTO MILLIONS

By C. D. Lockwood

Possession of the Midas touch is the undisguised ambition of every operator who drills for oil. Very few men engaged in the finding branch of the petroleum industry are much interested in a proposition which promises only 10 per cent or so on the investment, even though it is giltedged so far as security is concerned, unless they have already "made their pile." What the wildcatter is looking for—the only reason why he undergoes the discomforts or hardships, takes long chances and stakes everything he possesses and some things he does not—is the prospect of making a million or two millions, or at least half a million.

During the past year numerous operators in the Fort Worth territory, several of them residents of Fort Worth, have achieved notable wealth in the oil business. No less than 15 separate transactions each involving amounts ranging from $150,000 to more than $2,000,000, have been recorded in North and West Texas exclusive of the Wichita Falls and Panhandle districts. But in almost every instance the man who became wealthy as a result of the deal was an oil operator of long experience who had worked for several years at the business merely making a good living—perhaps a very good one—before exceptional success came knocking at his door.

In $2,000,000 Class

Four deals consummated in North and West Texas, the Fort Worth territory, during the past year, reached the $2,000,000 class. Chief among these in popular interest was the sale of W. H. Dunning's holdings in the McElroy ranch of Crane and Upton Counties for approximately $2,000,000 to the Gulf Production Co., whose executive offices for this district are located in Fort Worth. This transaction was made late in October and involved about 28,000 acres, giving the Gulf Production Co. practically a solid block of 50,000 acres around this pool, the remainder having been acquired from Dunning before the first McElroy well was drilled. At the time of the deal, Dunning had one well on the acreage that he had retained close to the initial test and it was producing about 800 bbls. a day. The McElroy Pool, owned solidly by the Gulf, is now proved up for at least 2½ miles in length by nearly a mile in width and will probably extend much farther as it is not actually defined in any direction although wells on the west side indicate that it probably won't go much farther in that direction. Thirteen producers on the property are now flowing 13,000 bbls. daily, partly pinched in, and some of them only partly drilled in.

On March 3 of this year a $2,500,000 transaction was completed for the surface and mineral rights on the McElroy ranch. The property involved consists of 69,000 acres, including 7,000 head of cattle and other ranch stock, buildings and other equipment, and also 69,000 acres of grazing land leased from the State of Texas. The property was purchased by H. A. De Compiegne and other interests of New York. De Compiegne is vice president and director of the Salt Creek Producers Oil Co. and is also a director of the Mountain Producers of which the Franco-Wyoming Oil Co. is the holding corporation.

The deal was made by T. S. Hogan of Denver, Colo., who obtained an option on the ranch from J. T. McElroy last October 22, paying $50,000. This option was later extended on the payment of an additional $60,000 and the final cash payment on March 3 amounted to $2,390,000. It is said that the property will continue to be operated as a cattle ranch.

The Texas-Henshaw Deal

Another $2,000,000 transaction was made when the Brown County property of George A. Henshaw and associates was purchased by The Texas Company February 7 of this year. The total consideration was not made public but the cash payment amounted to $1,750,000. This high price was paid for 320 acres with 15 wells producing about 6,000 bbls. daily. All of the producers were located along the north and west lines of the property and subsequent development has shown that probably most of the acreage will be productive, a well on the south side having come in for 300 bbls. daily.

Roeser & Pendleton's Success

One of the outstanding successes of North Texas during 1926 was the discovery of the Cook Ranch Pool in Shackelford County by Roeser & Pendleton, Inc., of Fort Worth. This prolific pool was opened up February 18 of last year and from that date to March 1, 1927, the acreage owned jointly by Roeser & Pendleton and the Marland Oil Co., together with some owned in full by Roeser & Pendleton, produced a total of 2,220,271 bbls. Most of this crude tests above 39 degrees gravity and practically all of it brought more than $2 a barrel. Roeser & Pendleton's share of the production, due to the richness of their full-interest leases, is much more than half of the total, so that they may be listed among the $2,000,000 discoveries even though they have not yet sold their interest in the property. Many rumors of such a sale have been current in Fort Worth for several weeks and the figure used by the gossipers runs as high as $6,000,000 or $7,000,000.

Westbrook's Transactions

Perhaps the next most spectacular discovery was that made by Roy A. Westbrook and associates in Winkler County which will net them nearly $1,000,000 if the field produces the oil which it is confidently expected to yield. The discovery was made by Westbrook during the first week of November, 1926, and on November 23 the well and 1,440 acres of checkerboarded leases were sold to the Southern Crude Oil Purchasing Co. for $510,000, of which amount $225,000 was cash and the balance to be paid out of half the oil produced. A week previous to this sale, Westbrook had sold 1,580 acres of leases in six separate tracts to the Humble Oil & Refining Co. for $224,000 and the drilling of a well in Section 36, Block 27, and since that time a half interest in the remaining acreage belonging to Westbrook and his associates, totaling some 23,000 acres of scattered leases throughout the T. G. Hendricks ranch, have been acquired by the Southern Crude Oil Purchasing Co. for the drilling of four free wells around the discovery. Two of these are now drilling and a third is being started half a mile south of the discovery, which has been successively deepened until it is now 3,036 feet deep in pay topped at 2,965 feet, and is flowing and swabbing about 400 bbls. daily. The Southern Crude Oil Purchasing Co. has demonstrated its faith in the future of the field by laying a combination 6 and 8-inch line from the discovery well to the Texas & Pacific in Ward County, a distance of 17 miles southeast of the well. Winkler County doesn't have a railroad.

Johnston & McCamey's Cleanup

J. P. Johnston and George R. McCamey of Fort Worth have also achieved notable success during the past year and a half and a part of their money was made in the Westbrook Pool. During the same week when the Humble made the purchase mentioned above, the Roxana Petroleum Corp. purchased 880 acres of scattered tracts, part of which were close to the well, from Johnston & McCamey for $225,000 in cash. A couple of months prior to this, the Atlantic Oil Producing Co. had paid Johnston & McCamey $400,000 for 960 acres checkerboarded throughout the Westbrook block.

The first big strike made by these operators came late in 1925 shortly after they had opened up this country west of the Big Lake Field with their discovery in Upton County. The Republic Production Co. paid them $500,000 for their interest in the first well in the Hurdle district and surrounding acreage, and since then

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their transactions have run well above $1,000,000.

Josh Cosden's Big Sale

Among the million-dollar deals must be listed the sale of J. S. Cosden's Brown County properties located in the Cross Cut Field. Prairie Oil & Gas Co. was the purchaser in this case, obtaining 1,760 acres of proven and undeveloped acreage with about 800 bbls. of production for a reported consideration of $1,250,000 cash. Cosden maintains his Texas operating headquarters in the F. & M. Bank Building (now the Fort Worth National Bank Building), Fort Worth. This deal was consummated in Independence, Kans., offices of the Prairie Oil & Gas Co. February 21 and the Prairie took over operation of the leases the next morning. Cosden did not discover this production, as was the case with the other operators previously mentioned, but purchased the property about a year and a half ago for $500,000 and steadily built up the production. At the time of the sale to the Prairie there were approximately 50 proven locations on the various leases which were yet undrilled and of course this number may be increased with new extensions in the course of development.

J. D. Collett's Success

J. D. Collett is one of Fort Worth's oil men who has prospered during the past year in an exceptional manner and everybody who knows him is glad to see Dame Fortune setting her cap in his direction. Mr. Collett is president of the Texas Division Mid-Continent Oil & Gas Association and is likewise noted for his banquet stories. But he has achieved more distinction this year through part ownership in the tract of Crane County land on which the Eastland Oil Co. & Collett's No. 1 University is situated, that well having flowed at the rate of 188 bbls. an hour. The Eastland Oil Co. is a Fort Worth concern composed of Arthur M. Donnelly and his son, Garret Donnelly.

Shortly after the discovery well in the Church & Fields Pool was brought in last year, O'Keefe & Collett sold 1,280 acres in the immediate vicinity to the Simms Oil Co. and Atlantic Oil Producing Co. for $100,000 cash and $400,000 in oil, a total of $500,000. That was about April 15, 1926. About the middle of February, Simms and Atlantic drilled in their No. 2 University-A on one of the tracts acquired from Collett and associates and it flowed more than 8,000 bbls. of 31 gravity oil in one day before being shut in because of inadequate storage.

More Upton-Crane Traders

In this same pool, another pair of wildcatters reaped a juicy reward. Those were the discoverers, Church & Fields, who were bought out by the Magnolia Petroleum Co. for $400,000.

Turman & Maxwell, Fort Worth operators, also cleaned up a tidy sum in this pool through their sale to the Tidal Oil Co. The first of this year, this same partnership consummated one of the largest straight acreage deals of many months when the Tidal Oil Co. bought approximately 7,000 acres of Ector County leases from Turman & Maxwell for a reported consideration of $150,000. The only production in Ector County is J. S. Cosden's No. 1 Connell-A which has finally been put on the pump and is making better than 50 bbls.

Pecos County broke into the limelight this year through the discovery of phenomenal shallow production on the Yates ranch just west of the Pecos River in the eastern part of the county, about 18 miles north of Sheffield. About the same time the Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s 1,000-foot wonder well was breaking all records for that depth by flowing 6,700 bbls. daily, a well located nearly 4 miles southeast of the Yates Pool picked up some oil at 1,268 feet. This test was owned jointly by Kemper Kimberlin of San Angelo and by the Texon Oil & Land Co., discoverers of the Big Lake Field in Reagan County, and the latter concern bought Kimberlin's half interest in the well and 640 acres surrounding it for $320,000 of which half was cash and the other half notes. The discovery well was drilled to 1,300 feet after the transaction was completed and to date has been good for only about 30 bbls. However, the Texon Oil & Land Co. has staked locations for a couple of additional tests, one to the northeast and the other to the southwest of the original well.

Big Deals in North Texas

Practically all of the foregoing transactions and discoveries were made in the territory lying west and southwest of Fort Worth. No mention has been made of several large deals consummated during the past year in the Wichita Falls territory because most of these resulted from the efforts of operators who live in the city of Wichita Falls. Some of them, however, covered part of the central Texas territory and several should be listed due to the amount of money involved.

In Cooke County, for instance, the Hooser or Bulcher Pool, which is almost as close to Fort Worth as it is to Wichita Falls, was the scene of a $500,000 deal early this year when the Kewanee Oil & Gas Co. bought out the holdings of John Hooser of Dallas, who discovered the field.

The transaction of greatest magnitude during the past year in the entire North and West Texas territory was made early in April last year when the Phillips Petroleum Co. bought all of the Landreth Production Co.'s holdings in Wilbarger, Brown and Stephens Counties for $7,500,000. This included 54 wells with 4,500 bbls. daily production in the Rock Crossing district of Wilbarger County, 500 bbls. in Stephens County and 160 bbls. in Brown County. The purchasers conducted a heavy drilling campaign during the year and brought the Wilbarger County production up to more than 6,000 bbls., maintaining it at that figure for a long time.

The Humble Oil & Refining Co. also paid important money in Wilbarger County to Staley & Wynne who received $1,500,000. This deal was made at practically the same time as the Phillips-Landreth transaction. Humble acquired through this purchase 985 bbls. in Wilbarger County, 500 bbls. in Archer County and 200 bbls. in Wichita County.

In January of 1926, Riner & Bailey received $400,000 cash and $1,135,000 in oil from The Texas Company for properties in Archer County including 26 wells making 600 bbls. daily. J. K. Hughes Developing Co. also paid $360,000 in February, 1926, to the Trio Oil Co. for 80 acres in Archer County with 10 wells and 825 bbls. daily production. J. S. Cosden and the Consolidated Oil Co. paid $300,000 to L. P. Hammond for 70 acres in Archer County containing three wells with an average of 1,000 bbls. daily.

E. B. Lawson of Nowata, Okla., bought out the Winnipeg Oil Co.'s holdings in the South Vernon Field of Wilbarger County late in March, 1926, paying $310,000 for 49 acres and 15 wells making 500 bbls. daily.

McCamey, Sherrin & Lucey also sold out their South Vernon Field holdings in April, receiving $1,300,000 from the Empire Gas & Fuel Co. Their leases had nine wells making a little more than 1,000 bbls. daily.

In October, the Plains Production Co. sold 20 acres in the Turbeville Pool of Archer County with three wells making 1,100 bbls. daily, and 35 bbls. production in the Prideaux shallow pool of Young County for $237,500. The Shappell Oil Co. of Wichita Falls was the purchaser.

Numerous sales involving amounts up to $100,000 or more could be added to this list but the foregoing transactions are sufficent to demonstrate the possibilities for the legitimate operator in the North and West Texas territory. A point worth emphasizing, however, is the fact that this list can be carefully scrutinized without finding the name of one individual who came into a fortune without having gone through the trials and tribulations the oil man is heir to.

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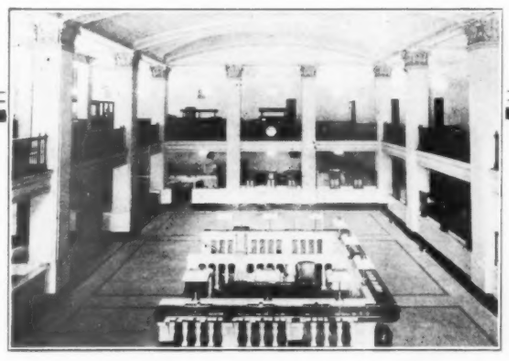

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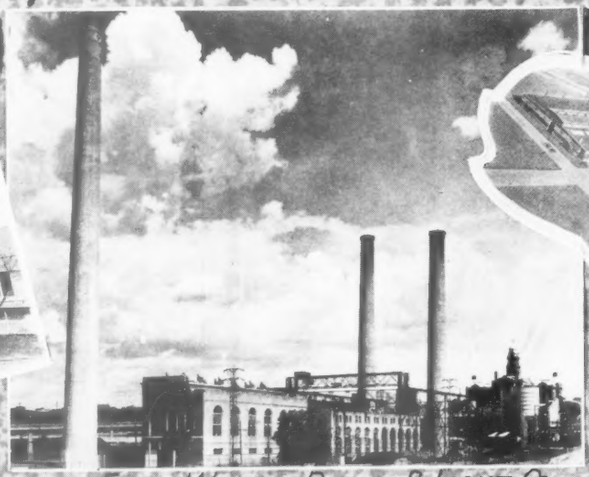

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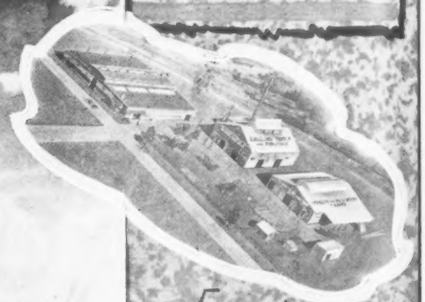

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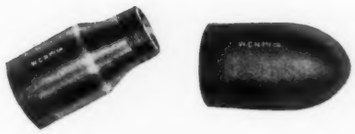

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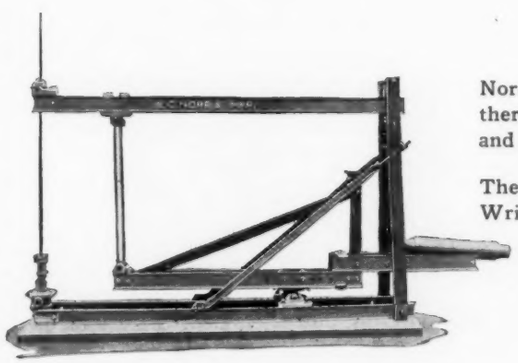

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NORRIS QUALITY PRODUCTS

SOUTHWEST TEXAS FIELDS

(Continued from Page 55)

No. 2 Puig, located 450 feet to east line and 150 feet to south lines of Evans' Tract, is drilling in rock at 90 feet. Suladie Drilling Co.'s No. 1 Puig, north half of Block 49, located 200 feet to south line and 350 feet to east line, has been spudded in. Crown Central Petroleum Corp.'s No. 21 Bruni, Block 44, located 510 feet to east line and 770 feet to north line, is testing at 1,731 feet. H. E. Neal's No. 1 Bruni, Block 41, located 150 feet to NW cor., is drilling at 300 feet. Sun Oil Co.'s No. 14 Bruni, east half of Block 45, located 2,050 feet to north line and 200 feet to west line, is drilling at 1,634 feet.

Mirando Valley Pool

J. L. Johnson and others' No. 1 Anderson, Survey 2,363, Block 6, located 150 feet to SW cor., is on sand at 1,881 feet. Cornhuskers Oil Co.'s No. 6 Garcia, Survey 605, has been spudded in.

Carolina-Texas Field

Associated Oil Co.'s No. B-3 Webster, SE NW NW, Survey 648, is standing at 2,604 feet. M. & N. Drilling Co.'s No. 1 Vela, Survey 1,012, Block 12, located 200 feet to northeast and southeast lines is standing at 3,035 feet. T. P. Morgan's No. 1 de la Garza, Survey 335, Block 23, located 150 feet to SE cor., is fishing for drill stem at 2,579 feet. Barnsley-Chicago Syndicate's No. 1 de la Garza, Survey 335, Block 19, is drilling at 2,800 feet. Mims & Putman Trustee No. 1 de la Garza, Survey 47, located 870 feet to north line and 1,170 feet to west line has cored sand at 2,150 feet.

Albercas Pool

O. W. Killam has made location for No. 1 Bruni, in Block 65, at 1,470 feet to SW cor. This location is in the same block as the big gasser brought in the past week by Maddox & Killam, No. 1 Bruni which made 50,000,000 feet from depth of 2,144 feet. This pool is located about 4 miles north of the Kitselman & St. Albans Pool, and about the same distance southeast of the line of production of the Bruni Tracts extension.

Mirando Pool—Zapata County

Magnolia Petroleum Co. has made location for No. 4 Cuellar in Cerrito Blanco grant at 5,110 feet to northeast lines and 150 feet to northwest lines. Magnolia has also made location for No. 5 Jennings in the Cerrito Blanco grant at 10,700 feet to southeast lines and 4,750 feet to southwest lines.

Charco Redondo Field

Harlingen Oil & Gas Co.'s No. 5 Martinez, located 750 feet to southwest and 150 feet southeast of Hull test, near Corrigan ranch is drilling at 600 feet. Duke & Langford's No. 3 Martinez, Block 22, at 150 feet to southeast and southwest lines has derrick up.

Rockdale-Minerva—Milam County

Noack & Laning are setting casing in their test on the Poor Boy Oil Lease. Coffield & Hale have made location for No. 2 John Hicks; No. 1 John Hicks, within the city limits of Rockdale is drilling at 1,150 feet. Noack Oil Co.'s No. 3 J. R. Smith at 1,375 feet made 40 bbls., but is drilling deeper in hopes of picking up the chalk; No. 4 J. R. R. Smith is preparing to set casing. Henry Davis' No. 3 Billy Smith is a producer making 15 bbls. W. T. Ramsel Oil Co.'s No. 3 Gohman is setting casing. Fritz Fuch's No. 2 Lon Hudson, T. S. Arnett Survey, lost bit and is sidetracking at 900 feet; location has been made for No. 3 Lon Hudson, T. S. Arnett Survey, 150 feet to NE cor. Rockdale Oil Co.'s No. 1 Lon Hudson, NW cor. of lease, is drilling at 900 feet. Clear Lake Oil Co.'s No. 1 Coulter (formerly No. 1 Arnold) southern extension of the field has been temporarily abandoned until Noack & Laning deepen No. 3 Smith. Kent Middleton's No. 1 Bartlett, being drilled by Elbert Williams, extreme west edge of the field is shut down at 300 feet.

Luling Field—Caldwell County

North & South's No. 1 Kelly, is drilling below 6,500 feet; No. 1 Tiller is drilling around 5,900 feet. Magnolia Petroleum Co. has made location for No. 18 Trammell, Reaville Survey, 200 feet to SE cor.; location has been made for No. 14 Proctor, J. Henry Survey, 300 feet SW of No. 9; No. 20 Maggie Moore, J. Henry Survey, 300 feet SW of No. 12, is drilling at 2,018 feet; No. 27 W. H. Tabor, Reaville Survey, 300 feet NW of No. 4, is drilling at 2,040 feet; No. 17 Alf Mercer, N. Reaville Survey, 800 feet NW of No. 9, is drilling at 1,650 feet; location has been made for No. 6 Roberts, H. Cottle Survey, 600 feet NE of No. 5 and for No. 3 Carter, H. Cottle Survey, 500 feet NE of No. 2.

Kingsville Field—Kleberg County

Jake Jarmon—J. L. Minahan have abandoned location made in submerged land of state. A. C. Erwin's No. 1 Kivlin (fee) Lot 7, Section 50, located 660 feet to SE cor., is shut down at 740 feet. Humble Oil & Refining Co.'s No. B-3 Dennett, Lot 19, Section 38, located 150 feet to SE cor., is rigging up to deepen. Carter-Walsh's No. 1 Flato, Lot 29, King land, has spudded in and is drilling at 550 feet. Humble Oil & Refining Co.'s No. 3 Kleberg Trustee, Lot 1, Section 40, located 150 feet to NW cor., is drilling at 2,380 feet; No. 1 Kleberg Trustee, Lot 8, Section 40, located 150 feet to NE cor., is setting 10-inch casing at 2,800 feet. Humble has made location for No. 3 King, east of Cayo del Grullo, and 500 feet north of No. 2 King, also for No. A-3 Dennett, NW cor., of Lot 2, Section 39, and has derrick up in NW cor. of Lot 5, Section 39 for No. 1 Kivlin.

Refugio Field—Refugio County

Coast Gas Co. has made location in Block 144, Refugio Survey, 330 feet to north line and 660 feet to east line, for No. 5 Shelly. Houston Oil Co. has made location in Refugio Survey at 592 feet northeast of No. 9, for No. 10 J. J. Heard. Houston Gulf Gas Co.'s No. 3 Holmes Heard is setting casing at 1,780 feet; No. 3 Fox, Lot 4 Block 5 is spudding in; No. 2 Moody, Town Tracts No. 2 at 450 feet to south line and 750 feet to west line, is setting casing at 1,660 feet. William F. Morgan's No. 1 Shelly, in Block 144, is drilling below 1,300 feet; No. 1 Rose Rogers, Powers Survey, at the fork of Blanco and Middle Creeks, is setting casing at 1,660 feet to complete.

GULF COAST FIELDS

(Continued from Page 53)

1 Sanders is at 2,435 feet. The Rio Bravo Oil Co.'s No. 2 P. F. is at 4,235 feet. Nos. 7 P. F. and 1 Bender are both deepening. No. 3 Bender is drilling at 4,335 feet. The Marland Oil Co.'s No. 4 Prudential is drilling at 3,665 feet. The Navarro Oil Co. has a derrick standing for No. 2 Humble. Lee and Woodard have taken over the W. F. Martin and others' No. 1 Settegast, which blew out at 3,410 feet and will drill it deeper. On the east side, the Texas Exploration Co.'s No. 10 Dooley is at 3,960 feet. Cullen and others' No. 8 Howe is around 3,765 feet.

Liberty County

In the Hull Pool, on the east side, the Republic Production Co.'s No. 23 Dolbear is at 3,375 feet. No. 35 is at 1,985 feet. The Gulf Production Co.'s No. 83 Phoenix, on the southeast, is drilling around 3,345 feet. No. 84 is at 3,565 feet and No. 85 is below 3,100 feet. A location has been made for No. 11 Thomas fee. The Texas Company's No. 1 Armlin is around 2,900 feet. No. 2 Hannah is at 3,780 feet. Texas Vacuum joint No. 7 Hannah is a location. The Mecom Oil Co.'s No. 1 Taylor is drilling deeper. The Empire Gas & Fuel Co. set casing in No. 24 Barngrover at 3,050 feet.

In the old section of the South Liberty Pool, the Navarro Oil Co.'s No. 10 Harrison, an old hole, is deepening. The Texas Company's No. 7 Staiti is at 2,435 feet. On the west side of the Trinity River in the new extension, the Gulf Production Co.'s No. 2 Marshall is at 435 feet. No. 1 Palmer is around 4,980 feet. No. 1 Bingle is around 3,435 feet. Humble Oil & Refining Co.'s No. 7 Welder is at 3,875 feet. Associated Oil Co.'s No. 1 Conley is drilling below 3,345 feet.

Orange and High Island

In the Orange Pool, the Brownie Babbittee Oil Co.'s No. 12 McLean is at 3,875 feet. Texhoma Oil Co.'s No. 16 Chesson is at 3,545 feet. The Gulf Coast company is deepening No. 5 Leon. Atlantic Oil Producing Co.'s No. 2 Moore is at 3,465 feet. Tillery Oil Co.'s No. 2 Cow Bayou is at 3,410 feet. Gulf Production Co.'s No. 3 Granger is at 3,765 feet. A location has been made for No. 11 Peveto. Wells and others' No. 2 Stark is a location in the south side of the pool and on the west side of Cow Bayou.

At High Island, in the western part of Galveston County, near the junction with Jefferson County, Gulf Production Co.'s No. 3 Smith is at 3,275 feet and No. 7 Smith is around 2,700 feet. Sun Oil Co.'s No. 12 Lockhart is drilling at 1,800 feet. No. 9-C Cade is at 2,335 feet and No. 11 Cade is below 3,400 feet.

Working over old wells on the Gereaux and Marmion leases of the Humble Oil & Refining Co., and on the Hogg land by The Texas Company, has materially increased the output of the West Columbia Pool. The Texas Company has a fishing job in No. 51 Hogg at 2,825 feet and has made a location for No. 23 Arnold.

The Rycade Petroleum Corp. has four wells drilling in the Nash Pool and the Gulf Production Co. two in the Orchard Dome, both in Fort Bend County, and both held exclusively by those companies.

The Rycade Petroleum Corp. swabbed 65 or 70 bbls. from No. 3 Myers at Markham at 3,390 feet and is pulling the screen to drill deeper. The oil stood up 1,700 feet in the hole. The Powers Production Co.-Moody Corp.'s joint No. 3 Myers, on the west side of the dome, is drilling around 3,290 feet.

South Louisiana Pools

The Gulf Refining Co. has taken over the Standard Oil Co. of Louisiana leases on the lands of the Industrial Lumber Co. in the new Stark Pool, a few miles east of Orange, and will develop them. A derrick is up for No. 1. Gulf company's No. 5 Lutcher Moore Lumber Co. lands is drilling at 3,000 feet. No. 1 Industrial Lumber Co. is about 1,000 feet east from No. 5 Lutcher Moore. The deal gives the Gulf Refining Co. complete control of the dome. That company has a line connecting with its Toomy station on the Vinton-Port Arthur line and is running the oil from the one well in the new Stark Pool. It is the Gulf company's No. 4 Lutcher Moore and is still flowing 2,200 bbls. per day. The original output was 3,200 bbls. per day through two one-half inch chokers. The depth is around 4,000 feet.

In the Lockport Pool, the Vacuum-Gulf companies' joint No. 3 Bayou d'Inde is a location. No. 2 Bordages is drilling below 5,500 feet and No. 4 Bordages around 4,900 feet. No. 2 Friedberg & Wolf is at 4,435 feet. No. 1 Farquhar has set casing at 4,360 feet and No. 5 is drilling below 1,700 feet. No. 7 Miller is deepening; No. 8 is drilling around 4,365 feet, with No. 14 around 2,870 feet. Locations have been made for Nos. 15 and 16.

In the Vinton Pool, Marrs McLean's No. 4 Gray is drilling at 2,900 feet. No. 12 is a location. The Edgerly Petroleum Co.'s No. 11 Vincent is shut down at 3,400 feet. No. 12 Vincent is rigging. The La and Colo Oil Co.'s No. 3 Johnson is drilling at 2,170 feet. Vinton Petroleum Co.'s No. 6 Rescue 13 acres is at 2,100 feet, with a fishing job. No. 7 is a location. Same company's No. 19 Vincent is rigging.

In the Edgerly Pool, the Gulf Refining Co.'s No. 41 Bright-Penn is at 1,625 feet. Hercules Oil Co.'s No. 1 Paraffine is at 1,135 feet. C. M. Crotty's No. 12 Lilliard is deepening. Rex Petroleum Co.'s No. 5 Hunter is at 3,465 feet.

Miscellaneous Coastal Texas

In the Raccoon Bend section of Austin County, where the Humble Oil Refining Co. and the Valley Oil Co. (H. T. Staiti) are operating jointly on a big block of acreage, joint No. 2 Thompson staged a blowout at 915 feet. No. 2 Reese is showing gas at 1,000 feet. No. 3 Austin College lands is in a sand showing some oil at 940 feet. Both the gassers showed oil in a sand and the gas will be killed and casing set for a test of each. No. 2 Austin College is drilling around 1,260 feet. No. 1 Bellville school is drilling around 1,164 feet. No. 1 Washington is rigged. R. E. Graves' No. 1 Hickory Mound is fishing at 500 feet. Green, Morgan and Mewis' No. 1 Mewis is rigging up 3 miles east of the town of Bellville.

The Miller Drilling Co. abandoned No. 1 Edwards, near Nederland, Jefferson County, at 3,810 feet.

Pennsylvania parties have a gas well estimated as high as 10,000,000 feet, on the Neches River, north of Rockland, Tyler County. Other tests drilling in East Texas, othewise known as the "Piney Woods section," include the Arkansas Oil Co.'s No. 1, in Shelby County, below 3,700 feet. The Chester Oil Co. is drilling No. 1 Pratt in Sabine County; the Avolana Oil Co.'s No. 1 Pickering in Shelby County. The Humble Oil & Refining Co. made a series of tests with small gasoline rigs in Jasper and Sabine Counties. The Arkansas Oil Co. has done the same in northern Walker County and over into Trinity and San Jacinto Counties.

Thompson and others' No. 1 Thompson in Walker County is idle at 1,500 feet. Beard and others have a location for No. 1 Beard, 15 miles east of Conroe, Montgomery County.

Brazoria County

Brazoria County—Allen Dome: Roxana Petroleum Corp.'s No. 2 Reese is drilling at 1,343 feet. No. 1 Bernard River is at 4,360 feet, and No. 3 Allen is at 5,336 feet trying to pull the screen. Clemens Dome: Roxana Petroleum Corp.'s No. 4 Clemens is at 3,810 feet. No. 2-A Pabst is around 4,200 feet. Stratton Ridge Dome: Pure Oil-Humphrey Corp.'s joint No. 1 Armstrong is at 1,810 feet. Gulf Production Co.'s No. 2 Perry rigging. Staley and others' No. 1, near Anchor, is at 435 feet.

Matagorda County—Hawkins Dome: Gulf Production Co.'s No. 8 Craig is at 4,165 feet. No. 2 Parkinson is drilling at 1,179 feet. No. 3 is rigging. A derrick is up for No. 4 Sanborn.

Jefferson County—Fannette Dome: Gulf Production Co.'s No. 10 Thomas is drilling at 900 feet. No. 2 Bordages is around 5,000 feet and No. 3 Bordages is at 3,100 feet.

Harris County—Hockley Dome: Humble Oil & Refining Co.'s No. 1 Warren is a derrick. Atlantic Oil Producing Co.'s No. 1 Burt, 3 miles north of Humble, drilling at 2,235 feet; Dr. P. S. Griffith's No. 2 fee, 12 miles north of Houston, is drilling at 2,224 feet. Brain and others' No. 1 Fitch, north of Spring, is around 2,300 feet. Same interests have a location near Tom Ball. The Junita Oil Co. has a derrick standing for No. 1 Kitsman, north of Cypress.

Fort Bend County—Long Point Dome: Gulf Production Co.'s No. 4 Beard is at 2,220 feet. No. 1 Wolf is at 875 feet, and No. 24 Davis around 945 feet. No. 2 Trone is rigging.

Liberty County—Moss Bluff Dome: Union Sulphur Co.'s No. 5 Kyle, drilling a water well. The test near Cleveland is idle.

Washington County—Brenham Dome: Pratt-Hewitt Co.'s No. 1 Kontsconsky is around 400 feet. DeWare and others' No. 1 Lehman is shut down at 2,365 feet, as is Schurmenberg and others' No. 1 at 350 feet.

Waller County—George Newman's No. 4, near Pattison, idle.

Goliad County—Houston Oil Co.'s No. 3 Pettus, west of Goliad, is at 1,817 feet, and its No. 2 Parks, east of town, is around 3,135 feet.

Coastal Louisiana

Cameron Parish—Hackberry Dome: Yount Lee Oil Co.'s No. 6 School land is drilling around 4,435 feet. No. 1 Gulf land is at 2,235 feet with a derrick standing for No. 4 State land. Union Sulphur Co.'s No. 1 Little is drilling at 1,845 feet. Nos. 3 Gulf land and 2 Vincent are both rigging. No. 2 Gulf land is a location. The Border Research Co.'s Nos. 1 Sabine Lake and 1 Mallard Bay are both idle. Pure Oil Co.'s No. 3 Sweet Lake is a derrick.

Calcasieu Parish — Sulphur Dome: Union Sulphur Co.'s No. 720 fee is deepening at 3,609 feet. Border Research Co.'s No. 1 Calcasieu Lake is shut down.

Iberia Parish—Eagle Point Dome: Gulf Refining Co.'s Nos. 1-Z State land and 1 Broussard are idle. No. 2-Z State land is rigging. Calcasieu Oil Co.'s No. 1

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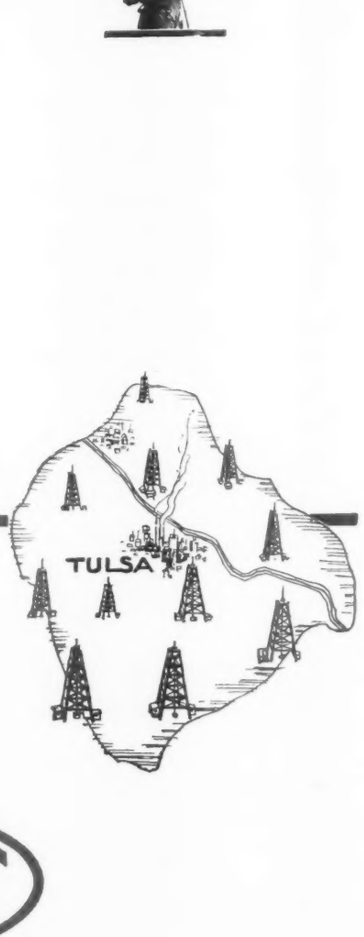

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Schwing is at 2,187 feet. Border Research Co.'s No. 1 Vermillion Bay shut down after setting 40 feet of surface casing.

Assumption Parish—Union Sulphur Co.'s No. 1 School lands, drilling at 970 feet.

Acadia Parish—Marrs McLean's No. 1 Carmouche is rigging.

Evangeline Parish—Pine Prairie Dome: The Texas Company's No. 2 Guillory is drilling around 4,000 feet.

Jeff Davis Parish—F. I. Getty's No. 1 LaCasine is around 3,325 feet. Estropal Oil Co.'s No. 2 Duex is at 2,675 feet. Elton Oil Co.'s No. 1 Buller, idle at 2,065 feet.

St. Martin's Parish—Rycade Petroleum Corp.'s No. 1 Stchfayala is drilling around 3,700 feet. Ohio Oil Co.'s No. 1 Martin is still shut down.

St. Mary's Parish—Border Research Co.'s No. 1 West Cote Blanche is rigging. Its No. 1, in Grand Lake, is idle at 4,200 feet.

The Bristol Oil & Gas Co.'s No. 1 Breaux and Terre Bonne Gas Co.'s No. 1 Whitman, in St. Landry Parish, are both shut down.

CALIFORNIA OUTPUT IS ON UPWARD TREND

(Continued from Page 31)

15 or 20 deep wells nearing completion, this field may be expected to show a gradual increase during the next few months. Drilling work in this area has eased up somewhat and for this reason no substantial increase in production is anticipated. The present output is averaging approximately 50,000 bbls. per day and, while subsequent completions may temporarily increase this to 60,000 bbls., it is not believed that production will go in excess of this figure for more than a short time.

Big Production to Continue

In checking over the production possibilities for the next several months, one cannot but be impressed by the fact that the output is destined to continue at a comparatively high rate. In checking over the individual fields, however, there are only a few areas which can be expected to exert any appreciable effect on the total output. Ventura Avenue may probably show an increase of around 5,000 bbls. per day but Huntington Beach on the other hand should continue its downward trend and more than offset any gain registered by the former. It is true that production in the latter area will not register any large drop week after week but the fact remains that production is settling.

The newly-discovered field at Goleta will not exert any appreciable effect on state production during the next several months due to the fact that the potential productive acreage is held in large blocks by capable operators.

In summing up the production situation, therefore, it will be noted that there is only one field which might result in a higher state production during the next five or six months. It is impossible to foresee beyond this period with any degree of accuracy, particularly in this case because of the wildcatting being done at Potrero. The Seal Beach Filed where the Pan American opened up a town lot area for development a short time ago holds the key to the production situation during the next few months.

Town Lot Area Overrated

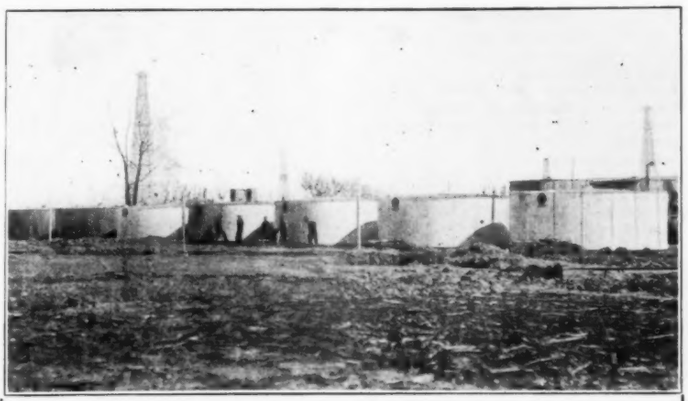
As a sort of a prediction the writer would like to go on record as being of the opinion that the town lot section at Seal Beach is being considerably overrated and, while this particular area will no doubt yield a number of new wells which may register a flush initial daily production of perhaps 2,500 bbls. each, there are a number of other drilling projects now under way which will never pay out. The highest point on the Seal Beach structure is on the Associated's Bryant lease about 1½ miles eastward. This places Alamitos Heights, or the so-called town lot area in the western part of the field, at the lowest point on the structure and on this assumption the edge of the field is probably not far removed from the Pan American's No. 1 Naples, which was responsible for the drilling now under way. The writer is already on record to the effect that state production might come perilously close to the 700,000-bbl. mark before the close of 1927 and, while this was partially predicted on the possibility of a new field at Potrero, this figure may be attained regardless of the outcome at Potrero if the Seal Beach Field continues climbing as rapidly as it has during the past few weeks. The present production of this district is approximately 35,000 bbls. daily and it is expected to pass the 50,000-bbl. mark well within the next 30 days. Just how much higher the output will go depends more or less upon the success attained by operators in the town lot area adjacent to the Pan American's extension well.

One must not get the idea from the foregoing that Seal Beach will not substantially reflect development work now under way in the town lot area for this field stands an excellent chance of reaching the 100,000-bbl. mark. The production peak is expected to be passed during June, although drilling in the older section of the field may prolong the peak a short time longer. It is hardly likely, however, that the Standard, Marland or Associated will engage in more than an ordinary amount of drilling, although the Marland will be obliged to drill a number of direct offsets along the western part of its Selover lease which adjoins the town lot area now under development. It is quite possible that something definite as to the potentiality of this section will be determined soon, after which a fairly accurate production estimate may be possible. Only a meager amount of information is available at the present time. The industry knows that the Pan American finished a 2,500-bbl. well producing clean oil, accompanied by an exceptionally wet gas averaging approximately 4 gallons of casinghead to each 1,000 feet of gas treated. The most important feature in connection with this completion is the fact that only 16 feet of oil sand has been opened up. The stability of the industry in California during the next six months depends more or less upon the thickness of this Selover sand in the town lot section. Does it lens or pinch out just west of the Pan American's initial producer or does it extend several hundred feet further west and afford a number of operators in the town lot area a penetration of several hundred feet? It is axomatic that no shallow sand will sustain intensive drilling for more than a very short period and this is the basis for the writer's opinion that production in the town lot area will come in with a bang, flare up temporarily and then decline very rapidly. This estimate is based upon the fact that the Selover zone at this point is quite restricted both in area and thickness.

Stocks Reduced

During the month of February total fluid stocks on the Pacific Coast were reduced 1,034,154 bbls., in contrast with a surplus of 2,714,831 bbls. accumulated during the month of January. This would ordinarily represent a healthy condition and presage higher prices were it not for the fact that gasoline continued accumulating, the increase during the month of February being 519,343 bbls. This commodity has been building up at an alarming rate for more than a year, the present storage being 13,889,204 bbls., as compared with 10,670,895 bbls. on hand February 28 last year. Naphtha distillates, tops, on the other hand, have declined from 6,666,518 bbls. to 3,903,222 bbls. during the same period. Light refining crude, over 20 degrees A. P. I., decreased 1,263,140 bbls. during the month of February, while heavy crude, that below 20 degrees in gravity, fell off 282,207 bbls. The gasoline and fuel oil market on the Pacific Coast has been exceptionally weak for more than a year and hence the recent reduction of 2 cents per gallon in gasoline effective March 18 and the second 2-cent reduction on March 22 did not come as a surprise. This was anticipated by those in close touch with the industry and, while

(Continued on Page 123)



Partial View of a Battery of Twelve 500-Bbl. Maloneys on Franks Farm, Tom Slick, Inc., at Seminole.

MALONEYS LAST LONGER

MALONEYS are the *longest lived* bolted steel tanks because (1) they are manufactured of rust-resisting Keystone Copper Steel, the most durable of sheet steel, and (2) because quality paint is forced into the pores of the metal by means of a fine spray, thus preventing it from cracking off.

Other MALONEY advantages are our patented crimp which promotes accurate fit of parts, the use of superior gasketing and our Gaso cement to insure tightness, strong reinforcing of seams with steel strips and channels, large cleaning out plates set flush with bottoms, and the latest and best valve and deck equipment.

"Alone in Quality"

MALONEY TANK MFG. COMPANY
Tulsa, Okla., U. S. A.
Distributors at All Principal Petroleum Points.

Sizes: 12 to 3,000 Barrels.

Packed in Steel-Bound Crates for Export

Howell Aluminum "3-in-1" Vacuum Pressure Valve and Thief-Hatch—The BEST and LATEST Deck Equipment—POSITIVE Safety.

MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE COPPER STEEL

MALONEY
"ALONE"

LA.-ARK. WILDCATS

(Continued from Page 50)

Section 16 22-8, is drilling white sand at 2,896 feet.

DeSoto Parish

Craise & Hintze are drilling in Fme in No. 1 Riggs, Section 27-14-13. Total depth is 3,110 feet. Dixie Oil Co.'s No. 1 Jenkins deep test, Section 9-12-11, which had a blowout, is fishing for cable tools at 5,283 feet. William Sebastian Syndicate has rigged up for No. 1 Sebastian, Section 11-10-13. Seip and associates in the Pleasant Hill area are drilling at 100 feet in No. 1 Roberson, Section 18-10-12. Ten inch casing is cemented at 80 feet.

Grant Parish

Gulf Refining Co. is drilling at 1,140 feet in No. 1-B Swope, Section 1-9-1w, and has set the 10-inch casing at 164 feet in No. 2-B, Section 12. The 10-inch pipe is cemented at 147 feet in No. 1-B. M. B. Swope has a rig up for No. 1 fee, Section 18-9-1e. In Section 10-7-4w, Rue and associates are drilling at 1,360 feet in No. 1 Elias & Williams.

LaSalle Parish

Tunica Petroleum Co.'s No. 23 L. & A., Section 9-7-2e, is shut down at 779 feet for boiler repairs. The same company has a rig up for No. 25 L. & A., Section 6-8 3e.

Natchitoches Parish

Ohio Oil Co. has abandoned No. 1 L. & A., Section 23-13-6w, in the northern part of the Parish. It was dry at 2,905 feet. The same company has a rig up in the same section for No. 1 Thomas. H. O. Readheimer is drilling in shale in his No. 1 Wafer, Section 3-11-8, at 910 feet. Tunica Petroleum Co.'s No. 24 L. & A., Section 35-13-6w, is drilling at 1,015 feet.

Red River Parish

Gulf Refining Co. has a derrick up for No. 23 Kennedy, Section 24-13-11. The same company's No. 37 Robinson in Section 25 is drilling out the 6⅝-inch plug at 2,485 feet. Amerada Petroleum Corp.'s No. 1 Long Bell, Section 5-13 9, is drilling gray sand at 1,874 feet. Magnolia Petroleum Co. has cemented the 6-inch casing at 2,679 feet in No. 24 Polly, Section 6-12-10. Phillips Petroleum Co. is drilling in chalk rock at 1,902 feet in No. 1 Long Bell, Section 16-12-8. A 50-bbl. pumper was added to the parish's list of wells in the completion of The Texas Company's No. 35-B Brinkenhoff, Section 30-13-10.

Richland Parish

Gulf Refining Co. is trying to kill a blowout at 2,397 feet in No. 1 Marshfield, Section 30-17-6e, Rayville area. The gas is estimated at 12,500,000 feet. The same company has cemented the 10-inch casing at 881 feet in No. 2 Rhymes, Section 5-16-6e, and in No. 1 Wayne, Section 36-17-5e, is drilling in red gummy shale at 2,439 feet. S. D. Hunter's No. 1 McCoy, Section 29-16-6e, is drilling in gummy shale at 2,375 feet. Ruston Drilling Co.'s No. 1 O'Neil, Section 35-17-6e, is in a sandy lime at 2,504 feet, and in Section 20, Stovall Drilling Co. is drilling at 1,720 feet in No. 1 Mitchell. Texas Louisiana Carbon Co. has cemented 6-inch casing at 2,268 feet in No. 1 Broughton, Section 1-16-6e.

Sabine Parish

In the Pleasant Hill district, which is being watched closely by oil operators, Arkansas Fuel Oil Co.'s No. 3 Logan, Section 33-10-12, has cemented the 6⅝-inch pipe at 3,105 feet. No. 4 Logan, same section, is in lime at 3,150 feet, while No. 5, Section 28, is setting the 6⅝-inch casing at 3,108 feet. Beckman & Freeman have drilled out the 10-inch plug at 78 feet and now are at 1,440 feet in No. 1 Logan, Section 26. Magnolia Petroleum Co.'s No. 1 Louisiana L. L. L. Co., Section 11-6-11, is drilling hard shale at 3,128 feet. This is in the south central part of the parish. Moffett and associates in No. 1 Moore, Section 5-9-12, are down temporarily at 1,938 feet to repair the boiler. In Section 34-10-12, the Ohio Oil Co.'s No. 1 Cook Land Co. is drilling hard lime at 3,130 feet.

Winn Parish

Greer & Gault's No. 1 Bodcaw, Section 9-11-4w, has been abandoned as dry at 3,300 feet. In Section 35-13-3w, Dodge & Cordell's No. 1 Tremont tested salt water with a showing of gas at 1,042 feet. Ohio Oil Co.'s No. 2 Edenborn, Section 4-12-1w, is drilling lime at 4,382 feet. M. M. Roark has a derrick for No. 1, Section 19 11-3w. Standard Oil Co.'s No. 1 Tremont, Section 1-12-2w, is drilling hard lime at 3,598 feet.

ARKANSAS

Union County

A wildcat gasser, estimated at 60,000,000 feet daily, was completed in Union County in the Marine Oil Co.'s No. 1-B Thompson, Section 10-18-13. The dry gas is coming from broken sands at 2,695-2,707 feet. The Marine Oil Co.'s No. 2-A Thompson, same section, is drilling at 2,100 feet. The 12¼-inch plug was drilled out at 149 feet. The No. 1-B has cemented the 8¼-inch casing at 2,654 feet. Garrett Modisette Drilling Co.'s No. 1 Union Saw Mill Co., Section 7-18-13, is coring at 3,115 feet. Ohio Oil Co. is making preparations to abandon No. 1 Crain, Section 1-17-14, total depth 3,004 feet. J. W. Olvey is drilling at 2,457 feet in No. 1 Simmons, Section 15-18-13. In Section 4-17-14, the Rovenger Oil Corp. is drilling No. 1 McCain at 2,636 feet. Superior Oil Corp.'s No. 2 Cordell, Section 5-18-13, is at 2,700 feet. The same company's No. 1 Jerry, Section 32-17-13, is drilling at 3,030 feet.

Ouachita County

A. T. Grayson's No. 1 Reynolds, Section 21-14-17, 5½ miles southwest of Camden, made a showing of oil and gas by the Halliburton test in sand at 1,744-56 feet. Six-inch casing will be set.

Clark County

Whelan Oil Co.'s No. 1 Burrow, Section 35-10-20, is drilling at 510 feet.

Columbia County

Arkansas Fuel Oil Corp. has abandoned as dry No. 1 Barge, Section 14-18-22. The hole was drilled to a depth of 3,271 feet. Colquitt & Thomas are rigging up for a test at No. 1 Duffer, Section 23-18-19. Columbia Oil Syndicate is drilling at 2,235 feet in No. 1 Whitehead, Section 14-19-23.

Lafayett County

Arkansas Fuel Oil Corp. has rigged up for a test at No. 1 Duty, Section 11-19-25. Kensaw Petroleum Co.'s No. 2 Red River, Section 3-20-24, still is waiting orders at 2,840 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 57)

taxes on the valuation, but in the present insurance the oil firms will be paying over one-third of all the State taxes, while the railroads, coal mines, stock raisers and other businesses will get by with only a small percentage of the tax they should rightfully pay.

Idaho-Wyoming Boundary Dispute

Some trouble may come of a discussion over the Idaho-Wyoming boundary in the southwest corner of Wyoming, according to statements and a recent petition emanating from that part. The southwest corner of Wyoming is a mountainous country with two great valleys hemmed in by the high peaks and reached only through devious passes in the surrounding mountain ranges.

These two valleys, generally called Star Valley, were recognized as garden spots in the West in pioneer times and were settled by the Mormons who still reside there and who have built up a prosperous agricultural community. The main products are cheese and dairy products, and shut in from the rest of the world in this mountain fastness, these people lead a simple life.

Oil operators decided last year that there was some chance of a field being developed in the Star Valley, and accordingly two wells were started. However, it has developed since that one of the wells is located across the State line in Idaho, and at the same time the hopes of the community have been excited with the prospects of a great oil field being developed in the near future.

As the State line divides some of the ranches there, the ranchers have made out a petition asking the legislature to resurvey the boundary line and co-operate with the State of Idaho to place the lands in one or the other of the two States.

Colorado Completion

In Colorado, in the north end of the Wellington Dome of the Fort Collins Field, the Texas Production Co. and the Union Oil Co. completed a joint well on the Foster lease in the Muddy sand at 4,386 feet. The new well appears good for about 400 bbls., though no test has been made on it yet. The well is located on Section 30-10-68.

On the same section, the Union Oil Co.'s Plummer well that showed for a water hole at first has been gradually changing to oil, until at present it is making around 300 bbls. of oil daily.

A deep sand producer is expected shortly in the Rangeley Field on the western slope in Colorado. The Tidewater Associated company drilled a well on Section 24-2-103 and found a showing that appears to be commercial at 3,740 feet. The well is now being tubed, while the pressure is being held in with barium sulphate, and a complete test will be had next week.

Montana Drawing

A drawing at the Great Falls Land Office for leases or permits on tracts supposed to contain oil and scattered over northern Montana was held the past week at Great Falls and the total names amounted to 1,011. These tracts are ones that were abandoned by the original lessees.

Two wells in the Sunburst district were interesting above the usual run during the past week. The Carter Oil Co. is wildcatting in the area south of the Sunburst Field, on the Marias River, and far ahead of any production. The Carter's well found a showing of oil at 800 feet that may prove to be commercial with further testing.

In the Sunburst Field on Section 27-35-2, the Hill-Lorensen Syndicate startled the operators by finding production in the Madison lime. The Ellis sand, at the point of contact with the Madison, is generally regarded as the lowest producing horizon in Sunburst. However, when this was found dry, the Hill-Lorensen well was sent on down into the Madison and at 1,543 feet a well was developed that started off at 60 bbls.

The Thirty-One Petroleum Co. drilled in a producer in the west part of the field that made 150 bbls. natural, and the Julian Petroleum Co. brought in a good well on Section 31-35-1 that will make 100 bbls. Both wells are in the Ellis sand.

RUNS FROM THE FIELDS

Salt Creek	42,880
Teapot	960
Big Muddy	2,790
Grass Creek	2,890
Elk Basin	980
Greybull	20
Rock River	2,960
Rex Lake	200
Lance Creek	740
LaBarge	300
Poison Spider	180
Osage	350
Hamilton Dome	1,400
Lander	360
Byron	40
Lost Soldier	3,550
Ferris	80
Simpson Ridge	50
Cat Creek	2,370
Lake Basin	190
Sunburst	12,000
Iles Dome	50
Florence	600
Moffat	2,540
Tow Creek	740
Fort Collins	3,660
Boulder	25
Rangeley	100
Walden	155
Hogback	780
Rattlesnake	1,930
Table Mesa	440
Artesia	2,000
Total	88,310

OKLAHOMA FIELDS

(Continued from Page 46)

Section 5-14-9, has been abandoned at 1,449 feet.

Okfuskee County

W. L. Umburn has the rig on the ground for No. 2 Holmes, SW cor. N... SW, Section 36-11-11.

Okmulgee County

J. L. Selby's No. 9 Flint, CEL NW s... Section 26 14-14, is spudding. Gray ... Co.'s No. 4 Peloche, C SE, Section 2... 15-12, was completed for 40 bbls. in ... Wilcox sand at 2,670-88 feet after a sh... of 30 quarts. T. Savoie's No. 3 Bl... CWL SE SW, Section 24-15-12, foun... water in the Wilcox sand at 2,730-... feet and has been abandoned. The Tex... Company's No. 1 Anderson, SE cor. S... NE, Section 3-15-14, was shot with ... quarts in sand at 1,554-67 feet and ... making 5 bbls. Pratt & Morgan's No. ... Colbert, NE cor. SW SE, Section 22-... 14, had sand at 1,249-90 feet and aft... a shot of 30 quarts made 10 bbls. Lin... Oil Co.'s No. 2 Thompson, NW cor. S... NE, Section 17-14-15, an old well whi... was deepened, has been abandoned ... 2,632 feet. G. E. Simons & Roxana P... troleum Co.'s No. 10 Reynolds, CEL S... NW, Section 15-13-14, is dry and aba... doned at 2,464 feet.

Osage County

Phillips Petroleum Co.'s No. 8, NE co... SE SE, Section 20-26-6, in the Burbank Pool, originally completed in a stray sand at 2,823-58 feet, is being deepened and now drilling in the Burbank sand at 2,950 feet. The Texas Company is building the rig for No. 9, NW cor. NE NE Section 28-26-6, in the Burbank Pool. Rigs are also being built for No. 10 SW cor. NE NE, and No. 11, NW cor. SE NE, Section 28-26-6. Phillips Petroleum Co. is putting up the rig for No. 6 SE cor. NE, Section 29-26-6. Indian Territory Illuminating Oil Co. made location for No. 1, NE cor. Section 28-23... Phillips Petroleum Co. made location for No. 7, NW cor. SE, Section 10-21... Winona Oil Co. made location for No. 1 SE cor. NE SE, Section 17-21-11.

Phillips Petroleum Co.'s No. 6, NE co... SW SW, Section 1-27 5, in the Burbank Pool, had the Burbank sand at 2,963-9... feet, shot 60 quarts and the well made 60 bbls. Blackwell Oil & Gas Co.'s No. 1-A, NW cor. NE SW, Section 5-27-1... in the Red Eagle district, is producing 3,250,000 feet of gas from the Wilcox sand at 2,219-22 feet. Skelly Oil Co.'s No. 11, NW cor. SW NW, Section 2... 26-6, in the Burbank Pool, was brought in for 258 bbls. after shooting 160 quarts in the Burbank sand at 2,915-67 feet. The Texas Company's No. 12, SW cor. NE, Section 30-25-8, is a Burgess sand well making 157 bbls. from 2,412-34 feet. Fifty-nine-Osage Oil Co.'s No. 37, SW cor. NW NW, Section 9-24-12, is pumping 5 bbls. from the Bartlesville sand at 1,642 82 feet. Delmar Oil Co.'s No. 2 NW cor. SW SE, Section 17-23-10, made 613 bbls. from the Wilcox sand at 2,476-94 feet the first 24-hour gauge. Ray Branstetter's No. 2, NE cor. NW, Section 23-22-9, was dry in the Bartlesville sand at 2,220 80 feet and has been abandoned at 2,525 feet.

Pawnee County

Ora Steen has moved a rig out for No. 2 Cowan, SW cor. NW NW, Section 22-20-7. Josey Oil Co.'s No. 6 Freeman, SW cor. SE SE, Section 21-20-6, drilled to 3,126 feet and plugged back to 3,036-56 feet and is pumping 20 bbls.

Pittsburg County

Quinton Spelter Co.'s No. 1 Stringer, SW cor. NW, Section 21-7-17, is drilling at 1,700 feet.

Pontotoc County

Homaokla Oil Co. has the material on the ground for No. 1 Harjo, NE cor. SE SE, Section 17-5-8.

Pottawatomie County

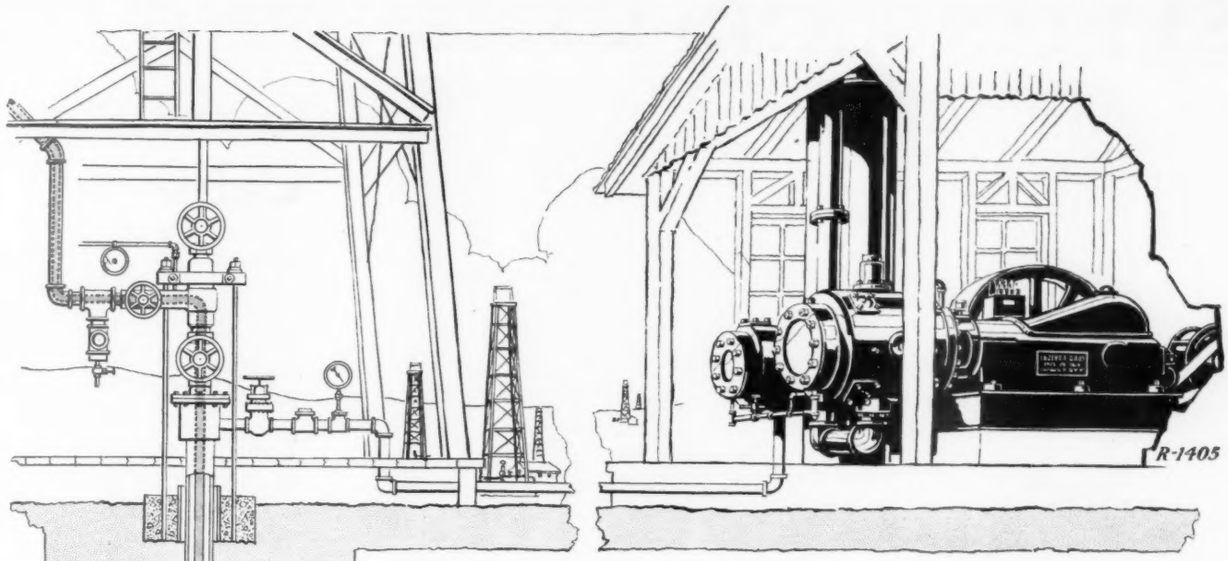
Roxana Petroleum Co. has abandoned the location for No. 1 Coleman, NE cor. NW, Section 33-7-5.

Gypsy Oil Co.'s No. 3 Earl, SE cor. NW, Section 16-9 5, in the Earlsboro Pool, had an initial production of 2,942 bbls. from the Wilcox sand at 4,280 82 feet. No. 4 School Land, NE cor. SW NE, Section 16-9-5, made 6,232 bbls. the first 24 hours from the Wilcox sand at 4 315-16 feet.

Seminole County

Magnolia Petroleum Co. made location for No. 6 Sparks, SE cor. NW SW, Sec...

(Continued on Page 118)



Increased Production Due to Air or Gas Lift

New high production records are being reported every week, and an investigation of the conditions almost invariably reveals some form of air lift, gas lift, or pressure pumping.

These high production records may or may not be a sign of real efficiency. The economy of such systems depends to a great extent on the Compressor installation.

For the past several years I-R Engineers have been studying the service these compressors have to meet. And they have developed the XOB Compressor to meet these demands. There was only one purpose in view—to properly fit the oil producer's job.

The Type XOB Compressor is a two-stage unit of duplex construction. This construction gives a flexibility to the machines which can be obtained from no other design.

Different sizes of cylinders are available for this unit, so that it can easily meet any pressure conditions that it is liable to encounter.

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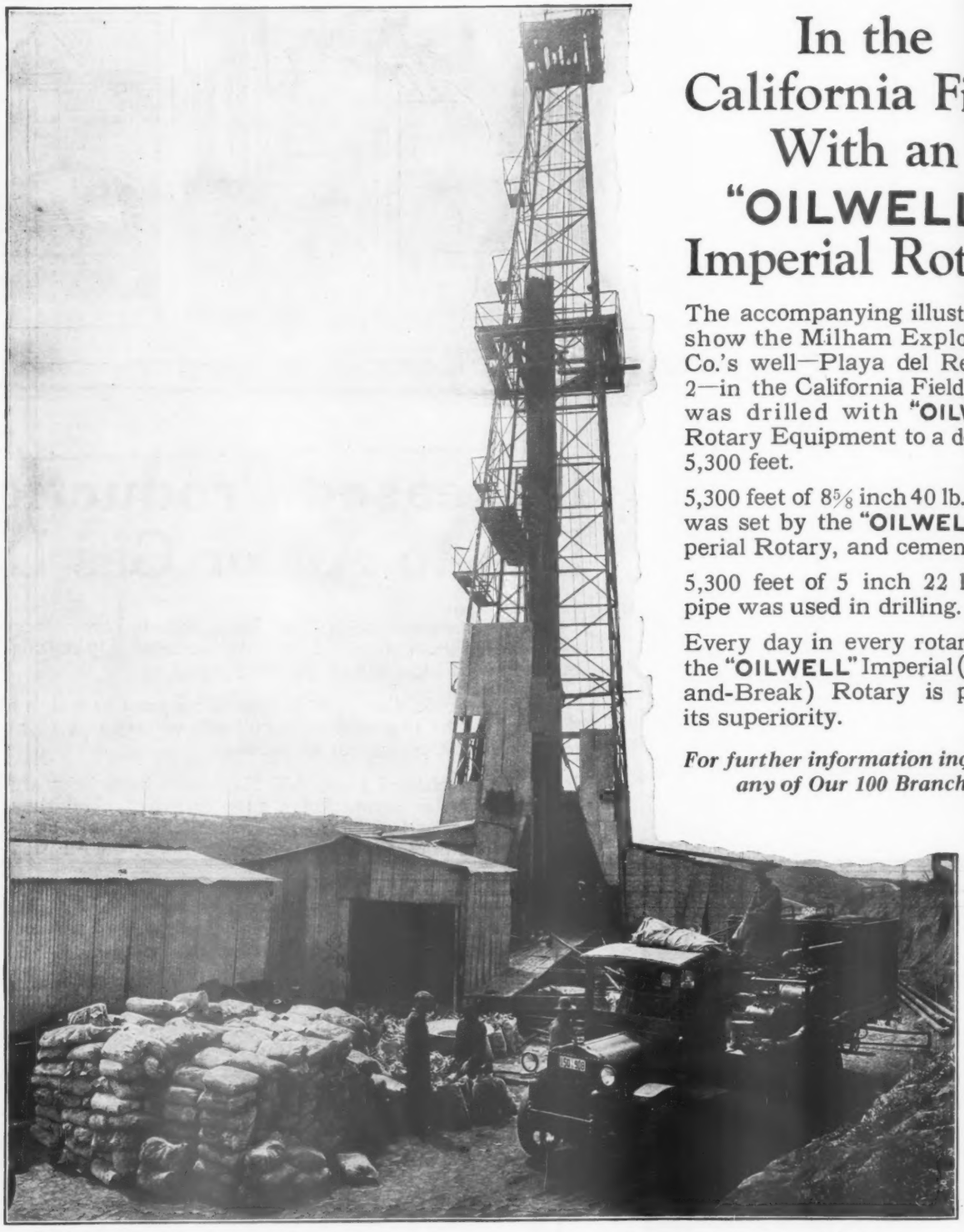
SETTING AND CEMENTING OVE



In the California Fie With an "OILWELL" Imperial Rotar

The accompanying illustrati show the Milham Explorati Co.'s well—Playa del Rey, 2—in the California Field wh was drilled with "OILWEL Rotary Equipment to a depth 5,300 feet.

5,300 feet of 8⅝ inch 40 lb. casi was set by the "OILWELL" I perial Rotary, and cemented.

5,300 feet of 5 inch 22 lb. d pipe was used in drilling.

Every day in every rotary fie the "OILWELL" Imperial (Mal and-Break) Rotary is provi its superiority.

For further information inquire any of Our 100 Branches

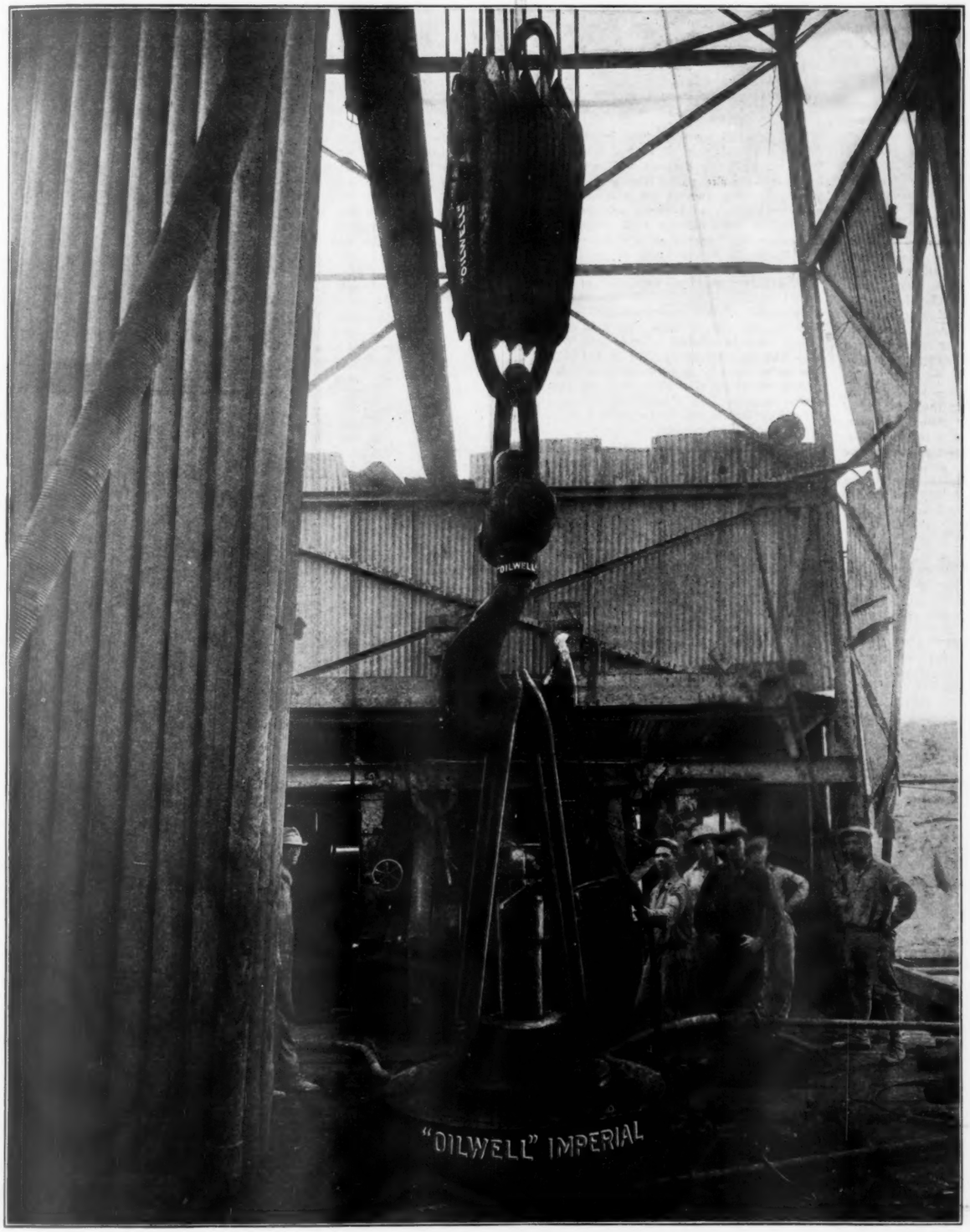
Preparing to Cement the Milham Exploration Company's Well, "Playa del Rey No. 2," in the California Field.

"OILWELL" ESTD. 1862 TRADE MARK (REGISTERED)

OIL WELL SU

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIEL QU

A MILE OF 8⅝ INCH 40 LB. CASING



5,300 feet of 8⅝ inch 40 lb. Casing set with an **"OILWELL"** *Imperial Rotary.*

SUPPLY CO.

"OILWELL" ESTD. 1862 TRADE MARK (REGISTERED)

FIELD EQUIPMENT

BRANCH STORES IN ALL OIL FIELDS

SUGGESTED METHODS IN SELLING LEASES

The article in the February 17 issue of The Oil and Gas Journal, "Demands More System in the Business of Selling Leases," is most timely and the criticism by the head of the land department of a Mid-Continent oil company is a merited rebuke to so-called "lease-brokers."

Of interest to land men and lease brokers may be the method I have followed in submitting acreage on my own wildcat wells and acreage I have sold for land owners and other brokers. I make it an infallible rule never to offer leases unless I have a definite commitment in writing as to the terms of the proposed sale and complete details of the property.

First. I always have printed in quantity for distribution a small map of the general area, showing the adjacent counties, producing areas, possible trends, and, in distinct markings, the block property, scaled as to its exact location. This conveniently gives the land man an opportunity of locating the general area of the proposed wildcat without going to his own maps.

Second. I have another map printed for distribution, showing the location of the various spreads or protective acreage, the price per spread, a legal description of the acreage submitted, the terms of the leases, royalty, drilling obligations, rentals, a legal opinion as to the title of the leases in question, and a brief summary of any information that I feel would be of interest to any prospective customer.

Third. I have made another printed map, showing the geology in detail, including structural contours, dry holes—with logs of the same annexed—and the geological reasons assigned for drilling the proposed wildcats; this information is naturally condensed.

The purpose of the three separate maps is to inform the land man fully and briefly of my proposition and to make it easy for him to reach an intelligent and early decision. A greasy map and high-powered conversation with a smattering of drilling jargon as "bull wheels," "calf wheels," "casing rippers," and "underreamers" and an interspersion of geological terms may have standing room in a hotel lobby and with a bunch of utterly irresponsible lease brokers in the business, or "oil game" as they term it, but not with the responsible broker.

To illustrate this: I was fortunate enough recently to secure a desirable lease to sell. It became noised around that I had the lease. A land man, representing a major company, to whom I had presented the same, and who was negotiating with me, kept track of the number of so-called lease brokers that submitted this same property to him. In the course of one day this property was presented to the land man seven different times with seven different prices, and with seven different stories as to how this property had been acquired for selling, but only one line of general talk as just referred to in the foregoing paragraph. This irresponsible lease broker soon wears himself out with his senseless chatter and frequent "hot checks," but in so doing he too often wears raw the good disposition of the land man who sometimes takes his ill-feeling out on the other fellow.

In a state like Texas, where distances between production can be great and a wildcat play extending over many miles, the simpler and more concise presentation of one's "lease play" generally opens the door of the land man. He is anxious as a rule to exchange views with a bona fide broker, and if one knows "his onions" he will find the land man receptive to his views and receive a cordial audience.

Many a major company is seeing the wisdom of employing through their land man an independent broker to purchase leases or production. They select some one outside of their own organization, directing him what and where to buy, and the maximum price to pay. The deals are generally consummated satisfactorily, the oil company paying the commission.

Reverting again briefly to the irresponsible lease broker; from him usually arises the talk about the "crooked land man" for this type of broker is prolific with statements, "I can reach him," or "I can do business with him," implying that he can buy the land man. In 20 years of drilling wildcat wells, in all areas, selling of spreads, protective acreage, collecting dry hole money, buying for undisclosed principals, and being constantly in touch with land men, I have never yet been asked for a "split." I have found land men 100 per cent honest.

The remedy for these irresponsible lease brokers lies entirely with the land man as he can exist just so long as the land man permits his presence in the land office. The fake stock salesman is disappearing through legislative restrictions, and I believe the day is not far distant when the lease broker will be licensed and probably bonded, eliminating thereby most of the undesirables. This will prove a good thing for the industry.

The above is a letter received by The Oil and Gas Journal from one of its subscribers.

RELATIVES OF BOSS HAVE A HARD TIME BUT THIS ONE GOT GOOD JOB

By J. L. Dwyer

Of the jobs that you'll find
On an oil field lease,
In the spring and the summer and fall,
Why the jobs that are held
By the kin of the boss
Are the funniest jobs of them all.
—Derrickfloor Ditties.

You find all sorts of jobs in the oil fields, and taking it all in all, they are held mostly by fellows who are out hustling to make good. The sinecure is practically unknown in the land of lease and bunkhouse, and there are certain elementary laws against such positions; unwritten, but nevertheless enforced by the unofficial brotherhood of workers; and enforced as rigidly as the well-known law against wearing pajamas in the field.

In spite of all this verbiage, there occasionally creeps into the field, the fellow who is related to the boss, and who had determined to "Go in for oil." His going usually is confined to a brief period of time, for when one of this stripe appears, all hands turn to, and give their honest efforts to make the going as rapid as possible.

The necessary period of time to rid the lease of such impediments is generally about three weeks, but in rare instances one of them clings like the paper on the wall, at the same time putting out no effort at labor. Take the case of Pete in the old Cushing Field.

You see Pete was related to poor old Billy Brown who has long since passed away. Billy was one of the biggest hearted men ever known to oildom, and whenever any of his relatives decided to have a fling in the fields, it simply meant that Billy's pay roll was increased by one more. Billy was fortunate in having a superintendent named Tom Jones who was an excellent manager. Tom could get rid of the relatives easily and smoothly and rapidly. They came, they lingered, and they went; that is all except Pete. Pete had determined to remain upon the lease, but like the lillies of the field, he toiled not, neither did he spin, although every meal found him plying a wicked knife and fork in the boarding house. Tom ran through the regular bag of tricks which had been successful in removing the other relatives from the pay roll, but they rolled off Pete's back like water from a duck. He was impervious, impossible, and immaculate. His garments never showed the brownish stains which the khaki of the other boys carried. He was always freshly shaved. He was there to stay, and that was that.

Day after day and week after week, found him straying at will over the sandy dunes of the lease which bordered on the Cimarron River; a desolate, barren, waste piece of land which presented a perfect corroboration to the statement that land which is no good for anything else may contain oil.

In due time, Tom tired of attempts to dislodge Pete, and the problems of lease operations occupied his time. So it was that Pete waded around ankle deep in sand. A friend was visiting the lease one day and, observing Pete, asked Tom, "Why don't you get rid of that bird like you did all the other relatives?"

With a surprised look, Tom replied, "Get rid of him, why he's the most valuable man on the lease, we couldn't get along without old Pete."

"But," asked the visitor, "what does he do?"

Solemnly, Tom answered, "You fellows just don't appreciate him, but Pete is our landscape architect."

OKLAHOMA FIELDS

(Continued from Page 114)

tion 11-9-5, in the Earlsboro Pool. Barnsdall Oil Co. made location for No. 3 M. Davis, SW cor. NE SW, Section 11-9-5. Empire Gas & Fuel Co. is building the rig for No. 7 Lacey, SW cor. NW SW, Section 14-8-6, in the Bowlegs Pool. The rig is also being built for No. 8 Lacey, NW cor. SW SW, Section 14-8-6.

Barnsdall Oil Co. and Mid-Continent Petroleum Co.'s No. 9 Williams, SE cor. NE SW, Section 33-11-8, was shot with 40 and 20 quarts in the Wilcox sand at 4,125-4,208 feet and swabbed 300 bbls. C. J. Wrightsman's No. 1 Harjo, SW cor., Section 35-10-6, is dry at 4,368 feet in the Wilcox sand. The Texas Company's No. 2 Wilmont, NE cor. SE, Section 10-9-5, Earlsboro Pool, swabbed 212 bbls. the first 24 hours from the Earlsboro sand at 3,517-44 feet. Gypsy Oil Co.'s No. 1 B. Carter, SW cor. SE NW, Section 11-9-5, had the top of the Earlsboro sand at 3,504 feet and drilled to 3,536 feet and after being shot with 30 quarts made 717 bbls. Twin State Oil Co.'s No. 1 Jenning, NE cor. SE NW, Section 4-9-6, was completed for 330 bbls. from the Wilcox sand at 4,438-41 feet after a shot of 7 and 10 quarts. Amerada Petroleum Co.'s No. 3 Anderson, NW cor. SW NW, Section 15-9-5, Earlsboro Pool, had a maximum production of 4,104 bbls. from the Wilcox sand at 4,252 73 feet. Mid-Continent Petroleum Co.'s No. 7 Tayeche, SE cor. SW, Section 24-9-6, in the Seminole Pool, is swabbing 100 bbls. from the Hunton lime at 3 977-93, feet. Tidal Oil Co.'s No. 5 Carter, SE cor. NW SW, Section 24-9-6, made 360 bbls. from the Hunton lime at 3,900 23 feet. No. 5 Carter, NE cor. NW SW, Section 24-9-6, made 2,750 bbls. from the Wilcox sand at 4,070-4,107 feet. No. 5 Mahardy, NW cor. NE SW, Section 24 9-6, was shot with 10 quarts in the Hunton lime and is swabbing 15 bbls. from 3,894-99 feet. Magnolia Petroleum Co.'s No. 2 Franks, SW cor. Section 25-9-6, made 1,700 bbls. from the Wilcox sand at 4,125-31 feet. Barnsdall Oil Co.'s No. 2 L. Jones, NW cor. NE NE, Section 34-9-6, had the Wilcox sand from 4,030 to 4,081 feet and made 6,130 bbls. the first 24 hours.

The Prairie Oil & Gas Co.'s No. 2 Strother, SW cor. SE SE, Section 27-9-6, made 3,000 bbls. from the Wilcox sand at 4,260-77 feet. Gypsy Oil Co.'s No. 3 Butler, NE cor. Section 35-9-6, made 1,830 bbls. from the Wilcox sand at 4,165-74 feet. Turman Oil Co.'s No. 4 Cudjo, NW cor. SW NW, Section 35-9-6, made 800 bbls. the first 24 hours from the Wilcox sand at 4,070-95 feet. Amerada Petroleum Co.'s No. 1 Rascoe, NE cor. SW, Section 15-8-6, made 4,105 bbls. from the Wilcox sand at 4,191-4,209 feet. J. P. Crosbie and others' No. 1 Sewell, SE cor. NE SW, Section 15-8-8, flowed 888 bbls. from sand at 3,264-66 feet. Dixie Oil Co.'s No. 3 E. Parker, NE cor. SW, Section 32-8 8, swabbed 115 bbls. from the Wilcox sand at 4,133-47 feet.

Stephens County

Brown & McAlester's No. 1 Taliaferro, NE cor. SE, Section 28-1s-8w, an old well, is being deepened from 2,123 feet. Amerada Petroleum Co.'s No. 1 Hanson, NE cor. SE SW, Section 12 1s-4w, is a location.

Carter Oil Co.'s No. 2 Hildebrant, SW cor. SE NW, Section 35-5-5w, has been abandoned at 1,525 feet. No. 3 Goza, NE cor. SW NE, Section 2-2-5w, is dry and abandoned at 2,476 feet. Continental Oil & Development Co.'s No. 1 Ball, NE cor. NW, Section 1-1-9w, is producing 8,500,000 feet of gas from sand at 1,857-64 feet. Mid-Center Development Co.'s No. 1 McRuer, SW cor. NE, Section 32-1-5w, has been abandoned at 2,070 feet. Gamble and others' No. 3 Massey, SW cor. SE SE, Section 25-1s-9w, is making 80 bbls. from sand at 2,158 78 feet. Magnolia Petroleum Co.'s No. 12 D. Russell, SE cor. NE SE, Section 25 1s-9w, is a 45-bbl. well in sand at 2,132-41 feet. Carter Oil Co.'s No. 1 Edmundson, SE cor. NE NE, Section 25 1s-9w, is a dry hole at 2,629 feet. Ellis Drilling Co.'s No. 7-B Bridenthal, CSL SE SE, Section 19-1s-8w, is making 35 bbls. from sand at 2,261-73 feet. Pearce & Brown's No. 2 Taliaferro, C N half SE, Section 27-1s-8w, was abandoned at 1,795 feet. David Malernee's No. 2 Burke, NW cor. NE NE, Section 34-1s-8w, an old well deepened, has been abandoned at 2,345 feet. R. S. Scott's No. 1 L. James, NW cor. SW SE, Section 12-1s-4w, had sand at 1,450-58 feet and is making 35 bbls. Empire Gas & Fuel Co.'s No. 1 Miller, NE cor. Section 5 2s-8w, is a 25-bbl. well in sand at 2,176-85 feet. Pace and others' No. 2 Massey, SE cor. SW NW, Section 12-2s-8w, has been abandoned at 2,315 feet.

Tillman County

Petroleum Investment Co.'s No. 1 Ennis, CSL SW NW, Section 15-1s-20w, was abandoned at 3,050 feet.

Tulsa County

W. A. McCullough's No. 2-A Crosby, CNL NW NE, Section 18-17-13, is spudding. Savoy Oil Co.'s No. 1 Buck, NW cor. SW SE, Section 7-16-14, is spudding. No. 1 Bennett, SW cor. NE, Section 8-16-14, is also spudding.

Suppes and others' No. 1 Ricketts, CSL SW NW, Section 5-17-13, an old well deepened to the Wilcox sand at 2,419-54 feet, had a hole full of water and has been abandoned at 2,650 feet.

No. 2 Smith, NE cor. NW SW, Section 5 17-13, is making 7 bbls. from the Perryman sand at 1,413-31 feet. No. 3 Smith, C NW SW, Section 5-17-13, was dry in the Perryman sand, drilled to the Wilcox sand at 1,940 75 feet and was abandoned. Holmes and others' No. 2 Bell, C SW NW, Section 14-19-10, is a dry hole in the Red Fork sand at 1,802-46 feet. No. 1 Storm, NW cor. SE, Section 25-19-10, has been abandoned in the Wilcox sand at 2,523-76 feet with a hole full of water.

Wagoner County

O. A. Sewell's No. 1 F. Charles, NW cor. SE SE, Section 28-17-16, is rigging up. M. E. Johnson has a machine on the ground for No. 2 M. Bruner, SW cor. NE SW, Section 36-17-16. G. S. Wilson has moved the machine out for No. 1 Lunnon, NW cor. NE NW, Section 14-16-16.

Cartwright & Kyle's No. 3 J. Lucky, CWL SE SW, Section 11-18-15, is drilling at 1,200 feet. Sevreda Oil Co.'s No. 5 McIntosh, SW cor. NW SE, Section 25-17-16, is making 20 bbls. from sand at 1,314-30 feet. M. E. Johnson's No. 1 M. Bruner, SW cor. Section 36-17 16, is dry at 1,632 feet.

Nowata County

The Prairie Oil & Gas Co. completed No. 20 Campbell, SE cor. SW SE, Section 36-25-16, for 5 bbls. in sand at 458-526 feet.

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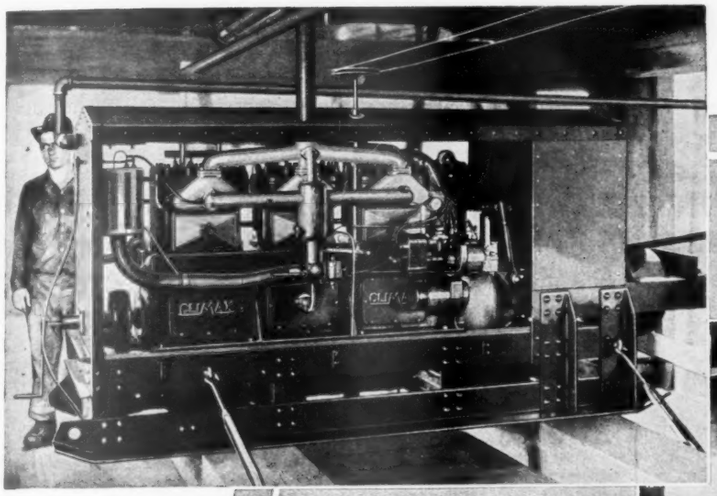

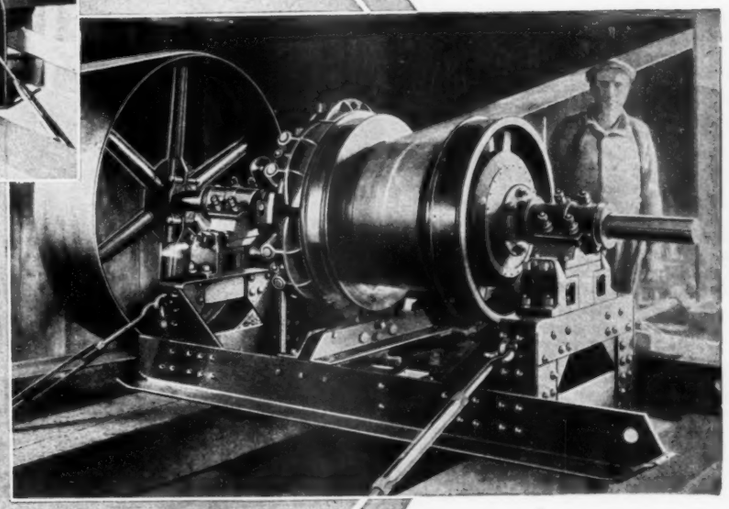

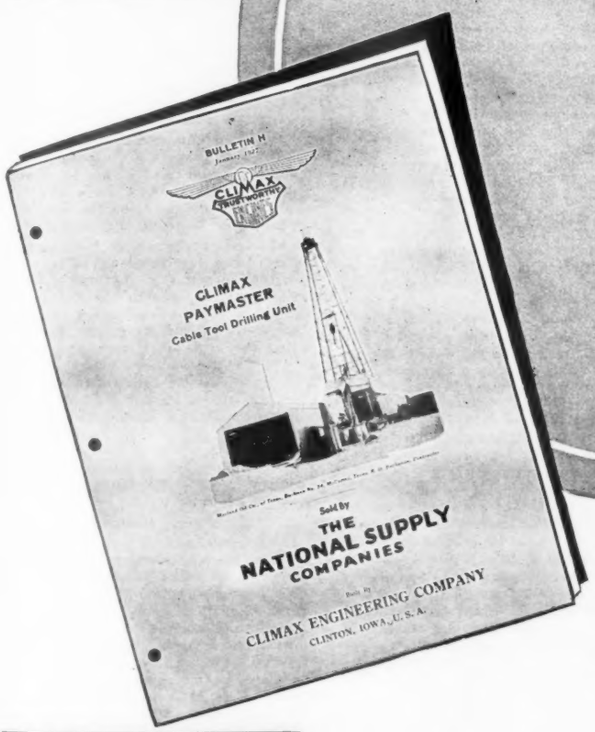

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Plant Operators Hold Two Meetings

Group Sessions of Natural Gasoline Men at Ranger and Wichita Falls Discuss Practical Operating Problems

By C. D. Lockwood

FORT WORTH, Tex., Mar. 27.—Two successful plant operators' meetings were held in North Texas during the past week by the Association of Natural Gasoline Manufacturers. One was at Ranger on Tuesday, March 22, where 153 plant operators registered and the other was at Wichita Falls on Friday, March 25, where 73 registrations were recorded. As usual, a number of men present didn't sign up so the attendance was considered excellent. In both districts, all of the plants were represented at the meetings and the sentiment of those in attendance was in favor of holding similar sessions early next fall.

Dr. E. R. Lederer, vice president of the Texas Pacific Coal & Oil Co., Fort Worth, presided at the Ranger meeting and some excellent papers were read. D. A. Sillers, superintendent of gas measurement for the Lone Star Gas Co. of Dallas opened the program with a paper on Gas Measurement which brought forth some interesting discussion on the relative value of various flow charts and other equipment in this work.

"Plant Operation" was discussed by C. M. Edwards, superintendent of the Ranger District for the Chestnut & Smith Corp. and discussion following this paper brought out several problems in which the operators present were interested but which have not been solved as yet. Most of these related to the treatment of gas and gasolines containing hydrogen sulphide, especially from the West Texas and Panhandle Fields. The hydrogen sulphide gas is proving destructive to all brass and copper parts of the plant equipment in those districts and the problem now being worked on is how to treat the gas before it gets to the compressor. Nobody present, however, was able to offer a practical solution of this problem.

Type of Oil

Considerable interest was also manifested in various types of absorbers. Dr. Lederer stated that from experiments conducted in laboratories of his company it seems safe to say that better efficiency is obtained in an absorber when the absorption oil comes from the same type of crude as the casinghead gas. In other words, to get maximum efficiency in an absorber operating on Ranger District gas it is advisable to use absorption oil made from crude that has the same characteristics as Ranger District oil.

Don J. Wallace, safety director of the Mid-Continent Oil & Gas Association, Tulsa, concluded the afternoon program with an instructive talk on plant safety and "Good Housekeeping." Mr. Wallace stressed the necessity for a plant superintendent to keep his house in order and related instances where disorderliness was a direct cause of serious accidents. He advised all superintendents to arrange for training classes in safety work, taught free by the Bureau of Mines, and told of the value of first-aid teams in saving life. Using A. V. Bourque, secretary of the Association of Natural Gasoline Manufacturers, as his victim, Mr. Wallace demonstrated the prone pressure method of resuscitation.

The night session at Ranger was almost equally as well attended as the afternoon meeting. The necessity for utmost co-operation in economical operation during the present period of low prices was one of the points stressed by Mr. Bourque and he also gave a clear presentation of the difficulties surrounding the natural gasoline industry at this time and pointed out that some new outlet for the product will have to be sought in addition to the uses to which it is now put.

In regard to the co-operation of men in the plant and those in the office, Mr. Bourque said that each should realize the difficulties faced by the other and should keep in mind the good of the organization as a whole. If the men running a plant are of that type the men in the office should realize that they will not make extraordinary or seemingly foolish requests unless an actual need exists, according to the speaker.

OTHER PAPERS

The papers of Otto Peters and D. A. Sillers presented at the Ranger meeting of the Association of Natural Gasoline Manufacturers will be found on Page 168 of this issue.

"Water Treatment" was very ably discussed by Otto Peters, superintendent of the Hanlon Gasoline Corp. at Breckenridge, in a comprehensive paper. One of the problems stressed in his talk was the necessity for eliminating excessive upkeep costs due to the destructive effects of impure water, and he stated that according to present indications the entire water supply of a plant will ultimately have to be treated.

Wichita Falls Meeting

The program at the Wichita Falls meeting was largely the same as that at Ranger. Mr. Sillers presented his paper on "Gas Measurement" to open the afternoon session and this led to considerable discussion over the merits of different types of gravity balances and bottles. Mr. Sillers is the inventor of the Acme gravity balance.

One of the most comprehensive and complete papers presented at either meeting was read by L. O. Smith, superintendent of the Tidal Western Refining Co. at Burkburnett, on "Plant Operations." Beginning with the drafting room of the construction company, he pointed out the benefits to the plant operator derived from correct design and construction of buildings and equipment, then traced the causes of most operating difficulties. One of the greatest sources of trouble in the Burkburnett district is the excessively high vacuums under which the lines are operated, amounting to as much as 26 and 28 inches.

Plants which are located in rather isolated regions cannot be run efficiently if the employes are not friendly and peaceable, according to Mr. Smith. Frequent inspections of all equipment at regular intervals also constitutes another factor in efficient operation. Prompt replacements and repairs where dangerous leaks are discovered saves costly fires and accidents.

An efficient superintendent, Mr. Smith said, will have reports on the previous day's gasoline output, fuel consumption, absorption oil and other necessary data as early in the morning as possible. He will also have every man in his plant instructed in the prone pressure resuscitation method, and methods for stopping the flow of blood because knowledge of these fundamentals often saves a valued employe from several weeks or months loss of working time. Mr. Smith produced a first-aid team which systematically and efficiently demonstrated for the assembled operators just how to go about resuscitating a man who has been overcome by hydrogen sulphide gas.

At the night session, Mr. Bourque talked on "Co-operation Between Plant and Office," and M. V. Enright, superintendent in the Wichita Falls and Coleman County districts for the Skelly Oil Co. talked on "Vacuum Problems."

The plant operators at both meetings seemed more interested in safety measures than practically anything else. One of the great hazards in the Burkburnett district is the old equipment in some plants built several years ago, especially during the boom days when the builders had to use the material closest at hand. The old metal crystallizes and suddenly gives way under increased pressures. The worst part of this hazard is that there seems to be no remedy except replacement of parts which is costly.

Cast fittings should be eliminated, according to several speakers, because they invite disaster.

Safety Feature

L. O. Smith told of one safety feature in use at his plants which seems valuable enough to be adopted wherever possible. He has a gate outside the plant which can shut off all the gas entering the compressors and completely shut down the plant. This gate has a sign over it and is painted red. In case of a leak inside the plant, or any accident, the men are instructed to get out of the building as soon as possible through the nearest exit whether it is door or window and then shut the special gate, cutting off the gas. Only one man is allowed to go back inside the building for injured. He figures one is enough to get an injured man and one is enough to risk in addition to others that might have been hurt. By means of this gate, the Tidal Western plant has been shut down in the record time of 15 seconds after a leak was discovered.

A movement is on foot in the Burkburnett district to have monthly meetings of plant operators, similar to those which have been held in the Tonkawa district of

CARE NECESSARY IN OPERATION OF NATURAL GASOLINE PLANTS

By C. M. Edwards*

District Superintendent, Chestnut & Smith Corp., Ranger, Tex.

Gas from the field before entering the plant should be passed through a scrubber. The interior of this scrubber should be a series of baffles, causing the gas to travel in a staggered direction. This travel would check the velocity of the gas to a certain extent, allowing the sand, pipe line rust and moisture to accumulate on these baffles which later will fall to the bottom of the scrubber. When the scrubber fills to a certain level, the sand will start coming over. The sand coming over accumulates in the suction header and compressor cylinders. The sand collecting in the cylinders and around compressor valves, decreases the capacity of the compressor and also cuts lubrication. The lack of lubrication causes excessive wear on pistons, piston rings and cylinder walls. In some cases where scrubbers are small or improperly designed, the sand will fall over to an extent that it will color the Field Low or first stage make. In most cases, this product is rerun in order to clarify before it is considered a salable product. Rerun loss on this product ranges from 12 to 15 per cent.

Travel of Gas

Field machines take the gas under vacuum and compress it to 30 or 35 pounds pressure, discharging into coolers or coil condensers. These coils are kept cool by water sprayed over them by the coil pit water circulating pump. Temperature of gas, inlet to coil range from 200 to 240 degrees Fahrenheit. Outlet temperature ranges from 60 to 90 degrees Fahrenheit. Amount of gasoline condensed by low-stage compression ranges from 15 to 30 per cent of total plant production, considering gas not less than 2 g.p.m. Amount of coil surface required for coil area ranges from 3½ to 5 square feet per horsepower used in compression. Vapor coils cooling area ranges from 7 to 10 square feet per horsepower used in compression, vapors ranging from 10 to 15 g.p.m.

Absorption Gasoline Condensing Coils

Amount of surface required for efficient precipitation of gasoline vapors coming from the knockout box depends primarily on the volume of vapors handled, amount of gasoline condensed and method of distillation. For steam distillation, temperature of 216 degrees Fahrenheit, pressure of 1 pound, coil surface required not less than 2 square feet per gallon of condensate per hour, fire distillation temperature ranging from 350 to 450 degrees Fahrenheit, pressure range from 2½ to 4 pounds. Amount of coil surface required, not less than 8 square feet per gallon of condensate per hour to be employed.

The average absorption plant requires about 2 lineal feet of 2-inch pipe per gallon of oil circulated per hour. The oil coil header pipe should provide for one stream for 1,000 gallons of oil circulated per hour. This takes an average oil velocity of about 100 lineal feet per hour, and will provide a high enough velocity so as to insure efficient heat transfer. If inter-cooler coils are used to cool the oil as it pumped from one absorber to another, the amount of cooling surface required should be about one-half that of the primary coolers. The oil coolers should preferably be put in a cooling tower by themselves. Cooling of oil is imperative from the viewpoint of maximum gasoline recovery. Insufficient oil cooling capacity has been responsible for low efficiency of gasoline extraction of a large number of plants.

Oil Pumps

Care should be taken in choosing the kind of pumps, since it is imperative that oil circulation be carefully regulated. For low pressure plants, centrifugal pumps are giving excellent service. A reserve oil pump should be provided. If pumps are driven with line shaft, operated with gas engine, it is advisable to have an auxiliary drive such as a steam engine, electric motor or a reserve gas engine. Where a surplus of residue gas is available, it may be used instead of steam to drive the reciprocating pumps.

Requirements for Gasoline Extraction

With oil temperature range from 50 to 70 degrees Fahrenheit when entering absorber, the average amount of oil required per 1,000 cubic feet of gas passed, ranges from 30 to 40 gallons with the g.p.m. ranging from 2½ to 4 gallons, with absorbing pressure of 35 pounds per square inch.

Continuous Test of Plant Residue Gas

In order to determine the amount of stable gasoline escaping with the residue gas and thereby enabling the operator to obtain a better plant control daily, tests of the residue gas should be made daily, for the average value of gasoline, by means of a flow meter.

Discolored Gasoline

Fortunately, natural gasoline generally passes color test. At some plants off-color drip is collected. In such instances, a small fire still is used to refine the product. Occasionally, natural gasoline is made off-color due to presence of lubricating oil accumulating in the compressors. At oil absorption plants, there is always the possibility of the absorbent oil discoloring the product. Liquid level controls and vigilant operators are the only safeguards against this.

*Ranger, Tex. meeting, March 22, Association of Natural Gasoline Manufacturers.

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Oklahoma. These meetings are to be held at the various plants in the district.

Special entertainment was provided at the Ranger County Club by Fred Yonkers, general manager of the Chestnut & Smith Corp. Several in attendance at the Ranger meeting were also the dinner guests of J. B. Massa at his home in Ranger.

GEOLOGISTS HOLD GREATEST GATHERING

(Continued from Page 32)

Kans., and L. C. Snyder of New York for editor.

R. D. Reed reviewed the recent developments in the California Field. Mount Poso in the San Joaquin basin area was given as an outstanding development in the northern fields, with its 2,000-foot pay sand and its wells running from 300 to 1,000 bbls. in initial production; 2 wells near Santa Barbara producing oil as high as 43 gravity; the Ventura Avenue Field with its producing wells of from 3,000 to 5,000 bbls. initial production, from sand below 6,000 feet and the Seal Beach Field the latest of the big deep sand fields. He said there were 56 wildcats drilling in the San Joaquin Valley and well distributed wildcat drilling wells in the Los Angeles Basin and in the Ventura district.

Robert Burns Campbell reviewed the recent developments in the enormous territory covered by operations in West Texas where production is had from the top of the Big Lime in most pools outside of Mitchell County. The counties of Reagan, Mitchell, Crane, Upton, Winkler, Howard, Scurry, Crockett, Loving and Pecos are already on production and the field at present is producing around 84,000 bbls. a day, he said.

Pratt on Salt Domes

Wallace E. Pratt gave an illuminating talk on the recent salt dome discoveries in the Gulf Coast region of Texas and Louisiana most of which were located by the use of geophysical instruments. Sixteen domes were thus located in the past year including some which have not yet been proven as oil bearing. Orchard Dome, in Fort Bend County; Nash Dome in Fort Bend and Petrolia Counties; Hawkinsville in Matagorda County; Allen Dome in Matagorda; Moss Bluff in Liberty County; Lost Lake Dome between Barbour's Hill and Moss Bluff; Fannette Dome in Jefferson County; Starks Dome, Cross Point and Napoleonville all in Louisiana and the Boggy Creek Dome in Cherokee County, Tex., where a big well was brought in a week before, were prominent discoveries named by the speaker.

The speaker devoted some time to the great deep-sand development in Spindletop where a recovery of over 3,000,000 bbls. on 1½ acres has already been recorded from off-side sands on the original Spindletop Dome of which nothing was known a year ago. He said the whole deep development does not cover over 10 acres of territory. Mr. Pratt sketched development of new production on older known domes including Piedras Pintas where two wells starting at 100 bbls. an hour were drilled; South Dayton and South Liberty; Boling in Wharton County; Kingsville, Kleberg County; Lake Charles, La., Sweet Lake, La., Sulphur Lake, La., Pierce Junction, Tex.

Big Potential Acreage

C. Max Bauer of Amarillo, Tex., who reviewed the Texas Panhandle Fields said 39,000,000 bbls. of oil had been taken from that area. The field has been proven to the extent of 100,000 acres and the territory looks promising all the way from the center of Moore County southeastward into Wheeler County. Southern Moore and western Hutchinson Counties look particularly good, he said. The speaker thought it possible that 180,000 acres would eventually prove productive in the general territory. The oil, gas and water are in communication in the pay formation. As the gas is exhausted the water comes in and many wells are showing water at this time. The use of the gas lift has proven beneficial in combating water intrusion reducing it from 20 per cent to 2 per cent in some instances. Geologists were not sure whether the oil comes from formation of Pennsylvania or Permian age, he said.

Seminole Has Geologists Guessing

T. E. Weirich, who discussed the Seminole Field, said Seminole was one field that had the geologists guessing. Pointing to a structure map on the screen back of him he said it was good as of Saturday, March 19, but on that day, Thursday, March 24, it might be "all wet." Seminole gives geologists an opportunity to change their minds with the completion of every well. The fact that a formation may run low there means nothing. Mr. Weirich believes the Seminole City Pool in Township 9-5 is definitely over its peak but that the South Seminole Pool, sometimes called Bowlegs, sometimes called Lima, in Township 8-6 and the Earlsboro and Searight Pools, appear to be yet on the ascendancy. Water has encroached on all sides in the Seminole City Pool, he said and nearly half the field appears to be affected by it. He found it impossible to definitely contour the pool in Township 8-6. The oil is coming from the Post-Simpson Wilcox. The true Wilcox of which there is about 400 feet is nonproductive.

P. V. Roundy talked on the Elk Hills Field in California. This great field has produced 75,000,000 bbls. of oil and even now shows little water. There are two areas, which may sometime be joined. The crude on the West area runs from 21 to 45 gravity and that on the east side 12.2 to 28 degrees.

Arnold Favors Publicity

Ralph Arnold read a paper on the value of publicity to the geologist. Mr. Arnold advised geologists to come out from behind the curtain of their reserve and let the world know what they are accomplishing.

He strongly recommended that the geologists make use of the trade journals, which he said, have a wide circulation and constantly growing influence. Mr. Arnold evidently believes it pays to advertise and that if a geologist wants to make his knowledge known beyond the confines of his personal contact he had better use the press to do it.

"I am a great admirer of the press" said Dr. Arnold. "It is the most potent influence in the world. If you give it facts it will print facts. The trade press has a lot to say about the oil industry today. It will have still more to say, and its influence is great."

Unit Operation in Cabin Creek

The Cabin Creek Field in West Virginia was presented by Theron Wasson. The Cabin Creek Field owned by the Pure Oil Co. and in which only sufficient wells have been drilled to keep the production up to refinery requirements was given an excellent example of unit operation. The oil runs 47 gravity and the production is confined to around 2,600 bbls. a day. The sand is from 2,700 to 3,200 feet deep. The structure is monoclinal and the best production occurs well down on the slope. The field was opened in 1914. It is located about 20 miles south of the city of Charleston. It is about half developed. The oil is run by gravity from the field to the Pure Oil Co.'s refinery 4 miles north. Fifty years before Drake discovered oil in Venango County, Pennsylvania, he said, primitive types of the present day cable-drilling tools were used in drilling for salt in the neighborhood of the Cabin Creek Field. The sand at Cabin Creek has a porosity of about 16 per cent.

Interesting Bradford Field

In reviewing the Bradford Field in Pennsylvania and New York, J. R. Newby brought out the fact that the field had produced 257,000,000 bbls. of high grade crude running as high as 47 gravity, but averaging a little less than that. It was opened in 1875 and reached its peak of more than 100,000 bbls. in 1881. It reached a low point of 4,000 bbls. in 1907 and since had been increasing until it has reached a production of 11,000 bbls. There are 85,000 acres of productive area on which are 25,000 oil wells. The water flood and compressed air methods of restoring pressure are being freely used and there has been some experimentation with soda ash, the result of which is not yet definitely proven. Dr. J. P. Umpleby made the comment at the conclusion of Mr. Newby's talk that the Bradford Field was an ideal laboratory for experimenting in modern production methods. A 2,000-foot well can be drilled there for $3,000 and the dry hole hazard is almost nonexistent.

Another "Flood" Pool

The discussion of the paper on Griffithsville and Tanner Creek, W. Va., prepared by E. A. Stephenson and R. E. Davis brought out the fact that water flooding is being used successfully in that area in the Berea sand, one flood producing 30,000 bbls. to the acre.

L. P. Teas reviewed the Bellevue, La. Field one of the best of Southwestern shallow pools, where oil is produced from depths ranging from 280 to 400 feet and where initial production of wells ran as high as 2,000 bbls. The pool consisted of only 91 acres but it produced 83,000 bbls. to the acre, and may reach 95,000 bbls. in ultimate production, he said.

The Homer Pool in Louisiana has produced over 50,000,000 bbls. W. C. Spooner told his audience, and it has had an acreage production of 20,000 bbls.

Fanny C. Edson of Tulsa read a valuable paper on "Ordovician Correlations in Oklahoma" tracing sedimentary formations from Talequah through the southwest area to the Arbuckle Mountains.

The Saturday meeting opened with talks on the Russell Field in Kansas by T. H. Allen and M. M. Valerius. According to the speakers geological conditions in the Russell area are jumbled to a degree that makes it difficult to make correlations. Attempts have been made to correlate the subsurface rocks in the Russell area with those of the fields as far east as Chase County.

Luling's Big Output

The Luling, Texas, Field is on an isolated fault which E. W. Brucks gave as a possible reason for the large accumulation of oil there to the exclusion of areas in other places along the Balcones fault line. The field is a 7½-mile "shoestring" that has produced 31,000,000 bbls. of oil and its decline has been very gradual. The Lytton Springs Field, in the same county, also a Balcones fault pool, (sometimes called the Lockhart Field) has produced 4,640,000 bbls. the speaker said.

The Turkey Mountain Lime, the deepest producing formation in Oklahoma geologically, was discussed by Paul Ruedeman. This formation has been productive in Waggoner, Tulsa and Osage Counties. It is not the siliceous lime, he said, but may correspond with the Hominy sand of Osage County. The largest wells have been found where brown lime overlays the gray lime. The Bruner and Inscho Pools in Township 19-11 were given as the best type of Turkey Mountain pools. The original Turkey Mountain Pool opened on the mountain of that name southeast of the city of Tulsa was less favorably located on the structure than the pools a little to the westward.

The closing papers on the program are covered briefly in another part of this edition or were of a character that make a brief review totally inadequate. The last session was held Saturday afternoon closing at 5 o'clock.

Many of the members accepted the invitation to make a trip to Ponca City, where they were entertained by the Marland Oil Co., going later to the 101 Ranch where they were given a buffalo barbecue. A trip to the Arbuckle Mountains in southern Oklahoma, that great natural school of geology, was also on the program and many took advantage of the opportunity to view the wonders presented by that uplift.

CALIFORNIA OUTPUT IS ON UPWARD TREND

(Continued from Page 113)

a cut in crude has also been expected for the past several weeks, this has not yet materialized up to the present time. This anticipated cut in crude may possibly be avoided of course if the major pipe line companies preserve their equanimity and refrain from bidding wildly for production anticipated in the town lot section of Seal Beach, but with a 4-cent cut in gasoline in less than five days a revision in the crude oil price schedule is almost certain to follow.

As has been stated on several occasions, if the pipe line companies will refuse to accept this possible production at Seal Beach or agree to accept only a specified amount from each producer, the situation will be kept well in hand. So far there has not been any scramble for this oil and it begins to look as though some of those drilling in the town lot area will experience a little difficulty in marketing their production. The reluctance of the major marketing companies to sign up additional production is due to their inability to dispose of this surplus and the unwillingness to construct additional adequate storage facilities. Several of the larger companies, of course, are adding to their tankage facilities from time to time, but there has been no general increase due to the almost universal opinion that the stocks on hand at present are too high and should therefore be reduced rather than increased. During the past 60 days the Associated added four 80,000-bbl. steel tanks at its Watson tank farm, while the Shell had just previously erected 10 steels a short distance south of Dominguez where the company will build its new refinery. The California Petroleum recently let a contract for fifteen 80,000-bbl. steel tanks to be erected at Norwalk and due to the fact that this company has initiated a rather ambitious expansion program, both from a marketing and production standpoint, this additional tankage will undoubtedly be utilized to advantage. This company also added several new steels at its Watson tank farm and refinery site.

Resume of Situation

In summing up this rather brief resume, the following deductions are apparent:

(1) Present state production of approximately 645,000 bbls. daily is expected to temporarily approach the 700,000-bbl. mark as the result of increased production at Seal Beach resulting primarily from intensive drilling in the town lot section in that area.

(2) Peak production at Seal Beach resulting from town lot campaign will not be of a permanent nature and may not reach the high point anticipated if pipe line companies refuse to accept maximum production or force producers to prorate their output.

(3) Unless productive limits of the Seal Beach Field extend a considerable distance further west than the Pan American's extension well, No. 1 Naples, a number of wells now drilling can never expect to pay out.

(4) The possible field at Potrero is still of a wildcat nature following failure of the Julian Petroleum to pick up the untested sand logged by the Associated Oil Co. last November.

(5) That the cut in crude oil prices which has been expected for several weeks may be averted and the price of gasoline increased again if marketers can control the production situation at Seal Beach and maintain or increase the tanker liftings from California. Present indications, however, tend to indicate that crude oil price schedule will be revised downward due to general weakening of entire market.

(6) That for the first time in several years marketing companies are not scrambling for crude oil contracts, this situation having resulted from the unwillingness of the major companies to substantially increase existing tankage facilities. This would in many cases require additional financing and it is doubtful if anything along this line will be undertaken.

(7) Those major marketers now drilling in the town lot area will extend their pipe line facilities into this section but it is doubtful if any of them will seek outside oil for the present. At the first sign of improvement, however, conditions will be reversed.

WILDCAT OPERATIONS IN PANHANDLE

(Continued from Page 42)

½ NW Sec. 199, Blk 3 ..... Underreaming 15-in. to 685 ft.
Republic Prod. Co.'s No. 1 Burnett, Sec. 116, Blk. 4 ..... Set 5-in. 3,090 ft.
Roxana Pet. Corp.'s No. 1 E. F. Bryan-C, Sec. 107, Blk. 4.. Drilling 3,110 ft.
Roxana Pet. Corp.'s No. 1 Brown, Sec. 106, Blk. 4..... Drilling 2,230 ft.
Roxana Pet. Corp.'s No. 2 Brown, SE cor. Sec. 106, Blk. 4 ..... Drilling 2,445 ft. (corrected).
Skelly Oil Co.'s No. 1 H. Schafer, SW cor. N ½ Sec. 198, Blk. 3 ..... Drilling 2,290 ft.
Skelly Oil Co.'s No. 2 H. Schafer, NW cor. NE Sec. 87, Blk. 4 ..... Drilling 2,200 ft.
Skelly Oil Co.'s No. 3 H. Schafer, NW cor. NE Sec. 86, Blk. 4 ..... Drilling 1,610 ft.
Skelly Oil Co.'s No. 4 H. Schafer, NW cor. Sec. 86, Blk. 4 Drilling 1,604 ft.
Stubblefield et al's No. 1 E. Cooper, SW cor. NE Sec. 5, Blk. 9, I. & G. N. Sur. ..... Rig.
The Texas Company's No. 1 C. A. Noel, Sec. 26, Blk. 4.... Drilling 2,640 ft.
The Texas Company's No. 1 J. L. Noel, Sec. 187, Blk. 3... Set 6-in 3,130 ft.
The Texas Company's No. 1 J. C. McConnell, NE cor. Sec. 66, Blk. 4 ..... Set 8-in. at 2,424 ft.
Vitek Oil Co.'s No. 1 J. H. Eller, NE cor. NW Sec. 200, Blk. 3 ..... Location.
Vitek Oil Co.'s No. 1 C. R. Garner, SW cor. Sec. 113, Blk. 4, I. & G. N. Sur. ..... Spudding.
White Deer Oil Co.'s No. 2 Jordan-Brown, Sec. 104, Blk. 4.. Drilling 2,796 ft.

CHILDRESS COUNTY

Brookins et al's No. 1 Mrs. Givens, 600 feet N and W of SE cor. Sec. 676, W. & M. W. Sur. ..... Rig up.
C. L. Sloane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands ..... Fishing 1,300 ft.

COLLINGSWORTH COUNTY

Duke & Langford's No. 1 Martha Johnson, Sec. 97, Blk. 22 Drilling 2,335 ft.
Harmon & Deems' No. 1 Wilson (Scott), Sec. 44, Blk. 21.. Location.
Martin et al's No. 1 T. V. Norwood, Sec. 30, Blk. 16..... Spudded and shut down.
Wischkamper's No. 1 fee, C SE Sec. 93, Blk. 16..... Drilling black lime 2,060 ft.

DALLAM COUNTY

James et al's No. 1 fee, Sec. 9, Blk. 47½..... Fishing 2,870 ft.
Harry Skelly et al's No. 1 Capitol Synd., Sec. 19, Blk. 17.. Total depth 2,065 ft.; cement; drilling 2,080 ft.
Marland Oil Co. et al's No. 1 Capitol Syndicate, Sec. 36, Blk. 18, Capitol Syndicate land ..... Shut down 950 ft.

DEAF SMITH COUNTY

Julian & DeGrace's No. 1 Mrs. R. A. Hindley, Sec. 47, Blk. K-8 ..... Rig.
Red Hill Oil Corp.'s No. 1 Barrett, Sec. 93, Blk. K-4 .. Shut down 700 ft.

DONLEY COUNTY

A. T. Drilling Co.'s No. 1 F. E. Harrington, Sec. 39, Blk. 3-C ..... Total depth 3,170 ft. in lime; reaming to set 6-in.; 1,200 water from 3,115-22; show gas 3,140-60 ft.

GRAY COUNTY

Archer, Blake et al's No. 1 Turneau, Sec. 111, Blk. 2-B.. Spudded and shut down.
Amos et al's No. 1 Crews, NW cor. Sec. 9, Blk. 25..... Spudding.
Bay Shore Oil Co.'s No. 1 C. W. Bradford, Sec. 143, Blk. 2-B ..... Total depth 2,666 ft.; gas shut in and work suspended.
Blackwell & McGee's No. 1 Bowers, Sec. 92, Blk. 2-B ... Drilling 2,835 ft.; making 45,000,000 ft. gas 2,770 to 2,835.; small show oil 2,715.
British-Amer. O. Co.'s No. 1 J. E. Meers, Sec. 107, Blk. 3.. 58,000,000 ft. gas and slight spray o.l; fishing bit 3,190 ft.
British American Oil Co.'s No. 1 J. M. Patton, Sec. 61, Blk. B-2 ..... Rigging up.
Cole O. & G. Co.'s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17, Blk. 1 ..... Repairing rig at 3,348 ft.
Jack Doyle's No. 1 D. W. Osborne, SE cor. Sec. 109, Blk. 3 ..... Rig.
Empire G. & F. Co.'s No. 1 W. C. Archer, SW cor. NE Sec. 174, Blk. 3 ..... Spudding.
Empire G. & F. Co.'s No. 1 B. Hughey, Sec. 129, Blk. 3... Set 6-in. 3,024 ft.; rainbow show oil 3,063 ft., 35,000,000 ft. gas; 1,100 ft. oil and 1,500,000 ft. gas granite wash 3,120-25 ft.; total depth 3,160 ft.; spraying 20 bbls.; running 5-in.
Empire G. & F. Co.'s No. 1 J. F. Meers, NE cor. SE Sec. 107, Blk 3 ..... Fishing tools 720 ft.
Empire G. & F. Co.'s No. 1 J. J. Wall, Sec. 161, Blk. 3 .. Total depth 2,930 ft.; shut down; 43,000,000 ft. gas., mixing mud to hold gas.
Empire G. & F. Co.'s No. 1 Webb, SW cor. Sec. 59, Blk. 25 ..... Run 8-in to 2,400 ft.
Foster et al's No. 1 G. Cutebank, SW cor. NE Sec. 65, Blk. 25 ..... Spudded and shut down.
Gray County Pet. Co.'s No. 1 Herndon, Sec. 147, Blk. 3... Shut down 2,405 ft.
Gulf Production Co.'s No. 1 J. M. Saunders, Sec. 40, Blk. 3 ..... Showing oil 2,950-55 ft.; pulling 10-in.
Humble O. & R. Co.'s No. 1 T. B. Haggard, SW cor. Sec. 112, Blk. 3 ..... Drilling 1,615 ft.
Johnson & Martin's No. 1 Fanny Holloway, Sec. 7, Blk. H. A. W. Wallace Sur. ..... Rig on ground.
John G. Lane's No. 1 A. Chapman, Sec. 19, Blk. 1, A. C. & H. B. Sur. ..... Drilling 3,225 ft.
Magnolia Pet. Co.'s No. 1 fee, Sec. 11, Blk. 3..... 1,800 ft. o.l in sandy lime 2,955-87 ft.; fishing 2,987 ft.
Neudigate et al's No. 1 A. Chapman, NE cor. E ½ SE Sec. 52, Blk. 25 ..... Rigging up.
Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3.... Shut down 120 ft.
Pampa Pet. Co.'s No. 1 Mary Leopold, Sec. 141, Blk. 3.... Drilling 3,360 ft.; 600 ft. SW in in hole from 3,320-60 ft.
Purple Sage Oil Co.'s No. 1 Johnson, Sec. 8, Rockwall County school land ..... Drilling 1,380 ft.
Riley & Heck's No. 1 Mrs. Hopkins, Sec. 66, Blk. 2-B..... Shut down 2,900 ft. for casing.
Ruby Oil Co.'s (was Weir, Kribs & Finklea's) No. 1 B. F. Talley, Sec. 114, Blk. 2-M ..... Shut down 635 ft.
Salisbury & Reynolds' No. 1 M. Huselby, C SE NE NE Sec. 55, Blk. 25, H. & G. N. ..... Location.
C. B. Shafer's No. 1 G. Cole, SE cor. W ½ SW Sec. 105, Blk. 3 ..... Drilling 500 ft.
The Texas Company's No. 1 H. M. Barrett, Sec. 131, Blk. 3 ..... Pulling big pipe; total depth 2,370 ft.
The Texas Company's No. 1 J. B. Barrett, NE cor. NW NW Sec. 130, Blk. 3 ..... Spudding.
The Texas Company's No. 1 Osborne, Sec. 108, Blk. 3.... Drilling 2,773; 9,000,000 ft. of gas.
The Texas Company's No. 3 Saunders, C E ½ Sec. 3, B & B Sur. ..... 11,000,000 ft. gas 2,395-2,415 ft.; increased to 20,000,000 ft. gas at 2,465 ft.; drilling granite wash at 2,555 ft.
Travis et al's No. 1 J. Back, Sec. 44, Blk. 25 ..... Small show of oil at 2,567; waiting for 6-in. pipe.
J. Williams et al's No. 1 C. W. Bradford, Sec. 123, Blk. B-2 ..... Rig blown down.

HANSFORD COUNTY

Caldwell et al's No. 1 J. Adriance, Sec. 21, Blk. 2, G. H. & H. Sur. ..... Shut down 585 ft
Oklavania Oil Co.'s No. 1 Whitson, Sec. 3..... Drilling 3,150 ft. lime.

HARTLEY COUNTY

Amerada Pet. Corp.'s No. 1 Frances Farwell, Sec. 27, Blk. 18 ..... Drilling 3,080 ft.
Deep Rock Oil Co.'s No. 1 Lyman & Balfour, Sec. 9, Blk. 2 ..... Shut down, 1,710 ft.
Eslick et al's No. 1 J. B. Irving, Sec. 13, Blk. 13..... Drilling 2,335 ft.
W. W. Holmes' No. 1 G. B. Coots, Sec. 57, Blk. XR..... To plug and abandon 2,990 ft.; top of granite 2,955 ft.
J. E. McKanna's No. 1 E. S. Collins, Sec. 3, Blk. I.S..... Drilling 3,265 ft.
J. E. McKanna's No. 1 Frances Farwell, Sec. 30, Blk. 22.. Drilling 975 ft.
J. E. McKanna's No. 1 J. M. Shelton estate, Sec. 29, Blk. 202 ..... 160 ft. salt water 3,320-25 ft.; total depth 3,440 ft.; underreaming 6-in.
Kork Oil Co.'s No. 1 J. M. Shelton estate, Sec. 1, Blk. 8-B ..... Spudded and shut down.

HEMPHILL COUNTY

A. J. Calhoun's No. 1 J. C. Isaacs, Sec. 189, Blk. C..... Spudded and shut down.
Hoover et al's No. 1 Schaller estate, Sec. 4..... Spudded and shut down.
Hoover et al's No. 1 fee, J. S. Hood Sur. ..... Small show oil and gas 4,027 ft., hole full water in sandy lime 4,005-10 ft.; shut down 4,380 ft.

HUTCHINSON COUNTY

Amarillo Oil Co.'s No. 1 Ida Ingerton, 5,280 feet from NL and 330 feet from EL Sec. 41, Blk. 47..... Drilling 400 ft.
Anderson & Pritchard's No. 1 Yake, Sec. 1, Blk. J ..... Total depth 3,005 ft.; plugging back to shoot.
Dominion Oil Co.'s No. 1 C. H. Jasper..... Show of oil 3,033-35 and 1,000,000 ft. of gas 3,015 ft; total depth 3,035 ft.
Marland Oil Co.s (Leo Flowers) No. 1 Carver, Wm. Heath Sur. ..... Total depth 3,125 ft.; 10,000 ft of gas.
Pole Cat Oil Co.s No. 1 W. B. Haile, Sec. 24, Blk. M-21.. Rig.
Panfield Oil Co.'s No. 1 Luginbyhl Brothers, Sec. 50, Blk. M-23 ..... Shut down 1,200 ft.
Phillips Pet. Co.'s No. 1 Yake, Sec. 36, Blk. 46..... Cement. 850 ft.
Pool & Golding's No. 1 Mrs. R. A. Jameson, Antonio Dubois Sur. ..... Drilling 1,000 ft.
Prairie, Shamrock & Hagy's No. 1 Yake, Sec. 35, Blk. 47.. Total depth 3,287 ft.; plugging back to shoot.
Prairie O. & G. Co. and Vacuum Oil Co.'s No. 1 Cal Merchant ..... Rig on ground
Vitek Oil Co.'s (was Get Oil Co.'s) No. 1 W. F. Allen.... Spudded and shut down.

LIPSCOMB COUNTY

Everett et al's No. 1 Mrs. H. D. May, Sec. 612, Blk. 43.... Shut down 960 ft.
McCorkle's No. 1 A. Barton ..... Fishing 3,760 ft.
Smith, Kinsley & Ruby's No. 1 C. W. Jones, NE cor. SW Sec. 100, Blk. 43 ..... Ten-inch stuck 700 ft.; total depth 800 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Masterson-J, Sec. 59, Blk. O-13.. Cleaning out 3,110 ft.
Amarillo Oil Co.'s No. 2 Terry Thompson, Sec. 19, Blk. 44 Trying to kill 70,000,000 ft. gas at 2,890 ft.
Douglas Oil Co.'s No. 1 H. M. Beauchamp, Sec. 112, Blk. 44 ..... Cleaning out 1,905 ft.
Marland Oil Co.'s No. 1 J. T. Sneed, Jr., Sec. 25, Blk. 1 .. Total depth 3,073 ft.; 6-in. set at 3,012 ft.
Humble O. & R. Co.'s No. 1 Kilgore, Sec. 28, Blk. 44..... Underreaming 5-in. casing; total depth 3,605 ft.
Morton & Co.'s No. 1-H Rubert, Sec. 191, Blk. 3-T..... Drilling 2,720 ft.
Phillips Pet. Co.'s No. 2 Special Sneed..... Drilling 1,000 ft.
Prairie O. & G. Co.'s No. 2 Sneed, Sec. 26, Blk. 6-T..... Total depth 4,300 ft.; will plug back and complete as gasser.
Moore County Oil Co.'s No. 1 Sneed, Sec. 30, Blk. 6-T..... Fishing 1,970 ft.
Shadler Brothers' No. 1 John Lowery, Sec. 237, Blk. 44... Total depth 1,265 ft.; underreaming.
Prairie and Shamrock's No. 1 Gober, Sec. 16, Blk. M-21.. Fishing 1,120 ft.

OCHILTREE COUNTY

W. G. Burton's No. 1 Stickler, Sec. 579, Blk. 43..... Shut down 3,740 ft.
Hamilton et al's No. 1 R. E. Wamble, Sec. 144, Blk. 43... Shut down 250 ft.
McCorkle Pipe Line Co.'s No. 1 R. H. Moore, Sec. 471, Blk. 43 ..... Shut down 1,600 ft.
McCorkle's No. 1 Weinett, Sec. 674, Blk. 43 ..... Rig.
Standard Dev. Co.'s No. 1 Bowden, Sec. 923, Blk. 43..... Shut down 900 ft.

OLDHAM COUNTY

Prairie O. & G. Co.'s No. 1 Landergin, SE cor. NE SW Sec. 46, League 310, Capital land ..... Drilling 2,180 ft.

POTTER COUNTY

Greater Amarillo Pet. Co.'s No. 1 Townsite, Sec. 167, Blk. 2, A. B. & M. Sur. ..... Shut down 2,020 ft.
Farmer O. & G. Co.'s No. 1 J. A. Jones, Sec. 3, Blk. 1.... Shut down 200 ft.
Kelmey Oil Co.'s No. 1 W. H. Bush, Sec. 19, Blk. 9..... Rig.

RANDALL COUNTY

Patterson et al's No. 1 Campbell & McIlroy, NE cor. Sec. 60, Blk. K-14, T. T. R. R. Sur. ..... Spudded and shut down.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A ..... Drilling sand topped at 4,881 ft.
Mercer & Dunbar's No. 1 H. A. Gill, Sec. 127, Blk. M-2... Cellar.
Murphy et al's No. 1 Gill, Sec. 31, Blk. M-2 ..... Shut down 650 ft.
Charles Page et al's No. 1 Hamilton, Tract 2, Clay County school land ..... Shut down 440 ft.
Pan-State Oil Co.'s No. 1 A. H. Tandy, Sec. 179, Blk. 42.. Rigging up.
Pettijohn et al's No. 1 J. A. Meade, Sec. 29, Blk. 1-B..... Skidded rig 20 ft. west and shut down.
Trammel et al's No. 1 A. H. Tandy, School Land Sur..... Spudded and shut down.

SHERMAN COUNTY

Gibson Oil Co.'s No. 1 Bivins, Sec. 35, Blk. 3-B..... Fishing 1,140 ft.
Hagy & Harrington's No. 1 S. F. Flores, C SW Sec. 64, Blk. 3-T, T. & N. O. Sur. ..... Location.
Phillips Pet. Co.'s No. 1 Price & Fuqua, C NE Sec. 33, Blk. 2-B, G. H. & H. Sur. ..... Location.
Phillips Pet. and Savoy's No. 1 Roach, Sec. 161, Blk. 1-C.. 500,000 ft. gas 2,840-2,915 ft.; hole full water 3,480-85 ft.; more salt water 3,570 ft.; drilling 3,760 ft.; to plug and abandon 3,810 ft.; salt water.
Whitehead et al's No. 1 Lee Bivins, C SW Sec. 36, Blk. 2, G. H. & H. Sur. ..... Location.

SWISHER COUNTY

R. H. Miller's No. 1 Todd ..... Location.

WHEELER COUNTY

American Ref. Co.'s No. 1 E. E. Carlton, Sec. 29, Blk. 13 Shut down 2,029 ft.
Angus et al's No. 1 G. A. Morgan, SW cor. SW NE Sec. 93, Blk. 17 ..... Rig on ground.
Boyles & Johnson's No. 1 S. L. Lewis, Sec. 40, Blk. 24.... Fishing for bit 240 ft.
Continental Oil Co.'s No. 2 Company, NW cor. SW Sec. 11, Blk. 27 ..... Topped pay at 2,235 ft.; sprayed 10 bbls. first 10 hours.
Continental Oil Co.'s No. 2 J. H. Jackson, SE cor. NE Sec. 11, Blk. 27 ..... Drilling 2,310 ft., showing oil and making 3,000,000 ft. of gas.
Foster et al's No. 1 S. H. McDonald, SE cor. NW SW, J. N. Lindsay Sur. ..... Spudded and shut down.
Magnolia Pet. Co.'s No. 1 Laycock, Sec. 9, Blk. 27..... Drilling 2,070 ft., making 3,000,000 ft. gas.
Magnolia Pet. Co.'s No. 1 J. A. Worley, NE cor. Sec. 39, Sec. 42, Blk. 24 ..... Drilling 1,370 ft.
Marland Oil Co.'s No. 1 W. E. Bentley, SW cor. NE Blk. 24 ..... Shut down 2,320 ft.
Marland Oil Co.'s No. 2 W. E. Bentley..... Drilling 300 ft.
Murchison & Fain's No. 1 Close, Sec. 77, Blk. 23 ..... 10,000,000 ft. gas 1,585-1,610 ft.; shut down.
J. J. Rock Co.'s No. 1 T. C. Jones, Sec. 1, Blk. 34 ..... Fishing casing 1,300 ft.
J. J. Rook's No. 1 C. W. Porter, SW cor. NW Sec. 41, Blk. 24 ..... Drilling 220 ft.
Wheeler O. & G. Co.'s No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 ..... Spudded and shut down.
Smith, Brady et al's No. 1 P. J. Sorenson, Sec. 53, Blk. 4-A ..... Shut down 1,470 ft. for pipe.
E. L. Woodley, Jr., No. 1 Woodley, Sr., Sec. 13, Blk. 5-A.. Running 5-in.; total depth 2,229 ft.
The Texas Company's No. 1 Bentley, NE cor. SW Sec. 42, Blk. 24 ..... Cemented 10-in. 1,735 ft.
Tidal Oil Co.'s No. 1 Bentley, NE cor. E ½ SW Sec. 42, Blk. 24 ..... Drilling 350 ft.
Upham Gas Co.'s No. 1 R. W. Griswold ..... Shut down 1,500 ft.; bailing out.
Upham Gas Co.'s No. 1 C. George, C W ½ NW NE Sec. 88, Blk. 17 ..... Shut down for water 900 ft.
Watchorn O. & G. Co.'s No. 1 F. E. Shelton, C NE NE Sec. 22, Blk. 24 ..... Rigged up and shut down.

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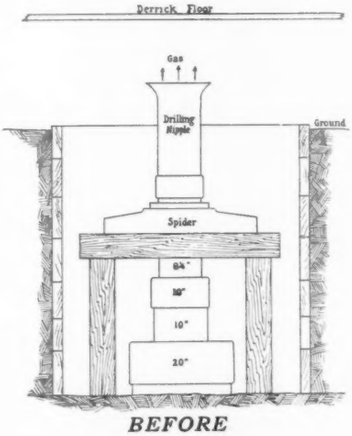
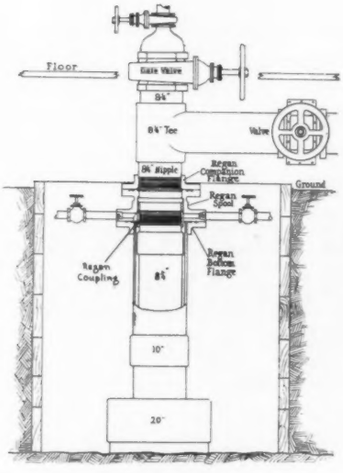
WHAT is believed to be the World's biggest gasser was successfully capped by a Regan Crew working under difficulties. The Canadian Oil Company's gasser, located at Shamrock, Texas, blew in 90,000,000 feet strong. After numerous methods had failed to bring this gasser under control, a Regan Crew solved the problem.

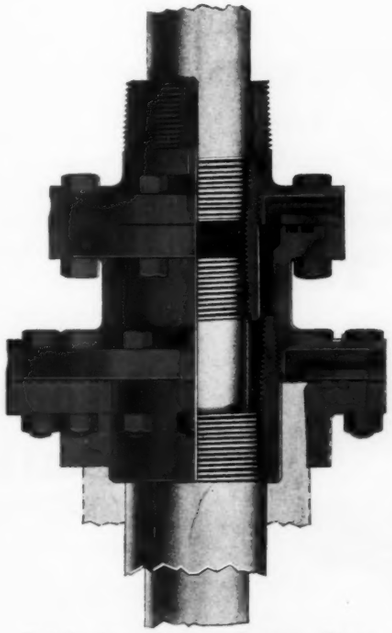
Using Regan Control Head equipment the well was soon harnessed—an achievement that again emphasizes the necessity of installing Regan flanges IN THE FIRST PLACE—*before* the well goes out of control.



BEFORE
the well was under control



AFTER
the well was capped



Detail view of Santa Fe type Regan Control Head; showing arrangement of flanges. Note the compactness. Least cellar space required.

How the Well Was Capped

THE SITUATION: None of the casing had been tied in the cellar. Casing consisted of 3 joints of 20" pipe; 10" pipe landed and with collar at top in cellar; and 8¼" pipe held by spider with collar and nipple above. The gas was coming out thru the nipple.

THE PROBLEM: To cap the well it was necessary to devise positive means of attaching valves.

THE SOLUTION: Installed nipple and Regan coupling to 8¼" pipe. Spider holding 8¼" pipe then removed, leaving Regan coupling up. A 10" Regan bottom flange installed on top of a 10" nipple, then stripped over 8¼" pipe and screwed to 10" pipe, bringing flange to proper distance below 8¼" Regan Coupling. With tension pulled a 10x8¼ Regan spool was added. Then 8¼" pipe tied to 10" pipe. 8¼" Regan companion flange, equipped with valves and nipple attached to spool with one bolt, then swung around eccentrically into flow of gas and bolted.

THE RESULT: Safe capping, BUT it could have been accomplished even more quickly if Regan Control equipment had been installed in the first place.

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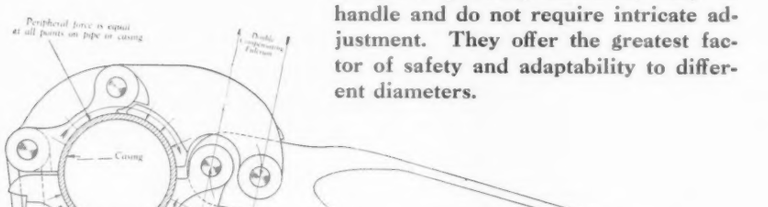

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PAPERS READ BEFORE GEOLOGISTS MEETING

(Continued from Page 76)

tier folds and all interfold areas do not yield oil from the Mowry shale.

The Dakota sand yields oil in important amount only on Little Lost Soldier Dome. It is primarily a gas sand on all the other productive folds. The most apparent reason for this condition is the fact that Little Lost Soldier Dome is highly dissected by faults which are known to effect intercommunication between the Dakota and Frontier sands and possibly with the surface, whereas the other productive folds are less extensively faulted and corresponding horizons are more deeply buried.

Faults on Little Lost Soldier Dome exert a very positive influence on the position of the oil-water contact.

Throughout the district, where an upper sand is primarily a gas sand, all lower productive sands thus far tested are gas sands and where an upper sand is primarily an oil sand, all lower productive sands are primarily oil sands.

The Frontier sands are water-bearing on all the folds except Little Lost Soldier where the extensive system of open faults permits these sands to acquire oil from below.

Turkey Mountain Lime, Oklahoma

By Paul Ruedemann and H. E. Redmon, Thompson & Black, Inc., Tulsa, Okla.—A brief discussion is given of occurrence, source, and relation to anticlines of production in the lime found between the Hominy (Bergen) sandstone and the Siliceous lime. Bruner Pool is detailed as a type structure.

Carboniferous Sediments of Mid-Continent Area

By M. G. Cheyney, Coleman, Tex.—Graphic quantitative resume by Isopach and structural maps showing westward migration, successive basins and final desiccation. Ouachitas appear as dominant structural influence and source of sediments following uplift in late Pottsville. Great overlap follows these later beds, tilted westward near close of carboniferous, forming bend arch at that time. The effect of Mesozoic and Tertiary movements are emphasized.

Eastern Kentucky Coal Field

By L. E. Fiske, Sistersville, W. Va.—The relation of oil and gas production to folding, in five oil and gas fields of the eastern Kentucky coal field, is shown by the structure maps accompanying this paper. The stratigraphy is discussed, as well as the major structural features affecting the eastern coal field as a whole. The possibilities of finding new oil and gas fields are studied, in connection with the relation of the area to the fixed carbon content of coals, character of reservoir rocks, and relation to major folding. The conclusion is reached that the probability of finding many new fields of importance is not large, because production is apparently limited; first, to areas in proximity to major folds; second, to areas of low or medium fixed-carbon coals, and third, to porous lenses in the reservoir rocks of limited extent.

Glenn Pool

By W. B. Wilson, Gypsy Oil Co., Tulsa, Okla.—Glenn Pool was the first major oil pool to be developed in Oklahoma. Opened in 1906, it has long since been fully developed in the Bartlesville (Glenn) sand of Cherokee age, which has been by far the main producing horizon. Local doming is present and has caused unimportant accumulations in the Mounds (Wilcox) sand. Accumulation in the Bartlesville, however, is not related to local folding, but is due to the pinching out of the sand body on the eastern or updip side of the field.

The writer believes that this pool furnishes very conclusive evidence that its oil was trapped while in transit up the dip from the west. He holds also that the most satisfactory explanation yet advanced for this movement of the oil up the dip is buoyancy arising from the difference in specific gravity between the oil and the associated waters.

Lower Pico Foraminiferal Fauna From Southern California

By G. H. Doane and S. G. Wissler, Los Angeles, Calif. — This paper describes about 75 species of foraminifera found in an outcrop at the D. M. S. and B. Lime Fertilizer Quarry in the Palos Verdes Hills about 25 miles south of the city of Los Angeles and 2 miles south of the town of Lomita, Los Angeles County, California. It is the only place known to the writers where such a fauna can be found in outcrop samples. This fauna is of particular interest to economic micropaleontologists of Southern California, as it is found in the majority of wells drilled in the Los Angeles Basin. Its relation to the overlying beds in this quarry gives some definite information as to the thickening of the formations basinward. From the paleontological evidence furnished by this fauna the age of the described material is considered to be Pliocene and to be from the lower Pico formation of this area.

Nomenclature of Some Common Genera of Foraminifera

By J. J. Galloway, Columbia University, New York.—The names in general use of some well-known genera of Foraminifera were antedated by other names for the same forms. The later names will have to be dropped if the Rules of Nomenclature are followed, which is recommended.

Copley Oil Pool of West Virginia

By David B. Reger, Morgantown, W. Va.—The Copley Oil Pool of Lewis and Gilmer Counties, West Virginia, is an illustration of synclinal accumulation of oil in sands which carry no water. Oil occurs in the deepest part of the basin, at the foot of a descending axis, being almost surrounded by gas in the anticlines on either side and along the higher synclinal axis northeastward. Southwestward the pool is terminated by poor sand rather than by changed structural conditions.

Oil production began by the completion of the Copley gusher in 1900, and still continues with a prospect that the pool will have 10 more years of life. Gas production on a large scale began about 1909 and still continues, although the rock pressure, which originally was 550 pounds, has declined to 65 pounds.

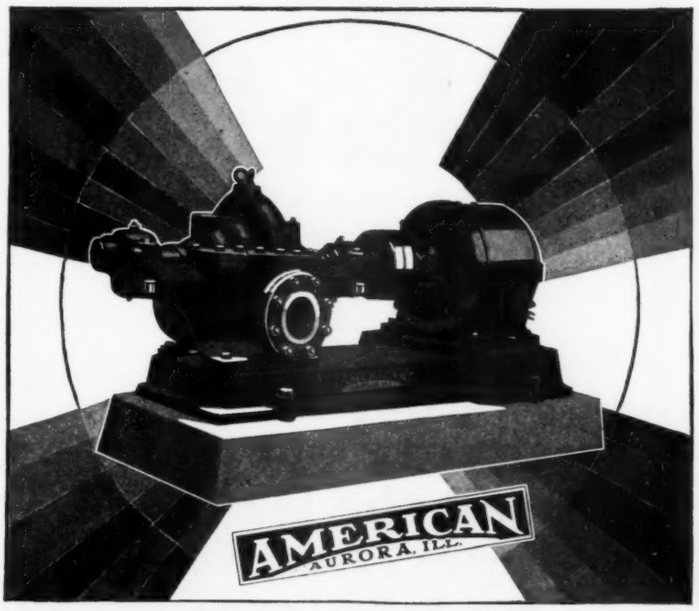
Production is mainly from the Gordon stray, Gordon and Fifth sands of the Catskill series of the upper Devonian. There is little prospect of lateral extension of the pool, but there is hope of new gas production in deeper sands. Oil production is not probable in deeper sands unless it may be found in the lower Devonian and Silurian beds which would be 7,000 to 10,000 feet deep.

Petrographic Study of Pre-Cambrian of Kansas

By Kenneth K. Landes, Lawrence, Kans.—Many wells have penetrated the pre-Cambrian surface along the "granite ridge" and elsewhere in Kansas. Microscopic examination of cuttings from wells which have gone some distance into the ancient crystallines confirms the idea that the Kansas pre-Cambrian rocks compose a metamorphic complex, mainly gneiss and schist, rather than granite. Some wells have gone directly from the sedimentary rocks into schist, but the pre-Cambrian rocks have not been recognized as such until a much deeper granite (probably gneiss) was struck.

Geology and Development of Fort Collins District

By W. G. Gallagher, Jr., and S. Grinsfelder, Union Oil Co. of California, Fort Collins, Colo.—The Fort Collins district is located 75 miles north of Denver, Colo. The three folds of this district have their anticlinal axes paralleling the front range of the Rocky Mountains which rise from the high plains 10 miles to the west of the folded area, of the three anticlines. Wellington and Fort Collins anticlines



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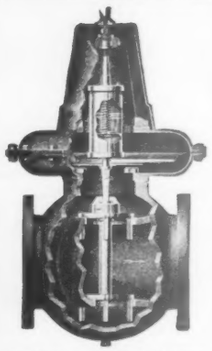

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have been found productive of oil and gas, and the third, Douglas Lake anticline, produced water in the possible productive horizons. The production to date has been from the upper sand of the Dakota group. The middle and lower sands of the Dakota group have not been tested in the productive area of the upper sand. Due to the oxidized nature of the sediments, it is believed that the formations below the Dakota group will not be productive.

Initial production for the area was in November, 1924, when the discovery well on Wellington anticline blew in as a 82,000,000-foot gasser. The productive acreage developed is held by one company, the Union Oil Co. of California. The development has been systematic and to January 1, 1927, 27 wells have been completed as producers. Three of these wells on Wellington anticline were gas wells. The total oil production to this date was 1,732,429 bbls. The field is the deepest in the Rocky Mountain area. The water problems are only those developed in the producing horizon as edgewater. On Wellington anticline, the top of the structure is productive of gas. This gas is not produced but is conserved to produce the oil in the oil area.

Status of Criteria of Oil and Gas Occurrence

By Frederick G. Clapp, New York City. This paper summarizes known criteria for the occurrence of petroleum and natural gas as a preliminary to the discussion of structure which is the principal subject of the Twelfth Annual Convention of the association.

Effectiveness of Compaction as a Cause of Migration of Petroleum

By R. C. Beckstrom and F. M. Van Tuyl, Colorado School of Mines, Golden, Colo. — Quantitative experimental data are presented bearing on the effectiveness of compaction as a cause of the migration of petroleum from sediments containing both oil and water. The conclusion is reached that this process is a very important cause of movement of petroleum from source beds into the reservoir rocks.

Gaptank-Wolfcamp Problem of the Glass Mountains, Texas

By I. A. Keyte, W. Grant Blanchard, Jr., and H. L. Baldwin, Jr., Marland Oil Co. of Colorado. — The Gaptank is composed of shales, limestones and thin, brown sandstones. The lower Gaptank is Canyon, the upper, Cisco. In post-Gaptank time, this region was folded and faulted, followed by a long period of erosion previous to submergence and deposition of the Wolfcamp (Permian); the region again emerged during which time nearly all of the Wolfcamp was eroded, as shown by the Hess lying on the eroded surface of the Gaptank in many localities.

The Uddenites zone, from which Bose described several ammonoids, is located well down in the upper Gaptank section, hence are Pennsylvanian and not Permian, as both Udden and Bose considered them to be.

Changing Characters in Texas Guembelinas

By L. N. Thomas and E. M. Rice, Pure Oil Co., Mexia, Tex.—There was an increase in ornamentation and in the development of multiserial characters in the Guembelinas of the gulf embayment of Texas during the Cretaceous. These changes are distinctive and useful for correlation.

Stratigraphy of the Moab Region, Utah

By A. A. Baker, C. E. Dobbin, E. T. McKnight and J. B. Reeside, Jr., United States Geological Survey, Washington, D. C.—Results of work near Moab, Utah, by United States Geological Survey field parties in 1926 in part accord with and in part differ from current interpretations. In the Salt Valley anticline, lower Mississippian rocks occur as limestone boulders in a conglomerate of unknown age. The oldest rocks in place at the surface are Pennsylvanian (Hermosa formation), sharply separated from Permian by contained marine faunas. Permian formations (Rico and Cutler) are not sharply separated. The former contains marine limestones; the latter, tongues of white sandstone and at top the sandstone member (DeChelly?) locally known as the White Rim. The lower Triassic Moenkopi formation, including in Green River Valley a marine limestone member, rests with unconformity upon Cutler and is in turn overlain unconformably by upper (?) Triassic Shinarump conglomerate. Shinarump grades upward into the Chinle formation and is not recognizable as a separate unit at many localities, especially toward the east. A group of Jurassic (?) formations including Wingate and Navajo sandstones separated by the Todilto (?) formation rests unconformably upon Chinle. The members of the group are conformable and have arbitrary internal boundaries. The succeeding Carmel and Entrada formations (upper Jurassic) are similar to this group, though the base of the Carmel formation may overlie the Navajo sandstone with unconformity. Summerville formation (upper Jurassic) intertongues with the underlying Entrada sandstone so that Entrada lighology extends higher toward the east. Summerville is separated by an unconformity from the overlying salt wash sandstone member of the Morrison formation (Cretaceous?). Dakota (?) sandstone (upper Cretaceous) rests unconformably upon the Morrison formation and is succeeded by the Mancos shale.

The stratigraphy would seem to indicate the following events in the history of the region: Possibly folding and erosion between lower Mississippian and Pennsylvanian; folding and erosion at close of Permian; erosion and possibly folding between lower and upper Triassic; and between upper Triassic and Jurassic (?) (Wingate); possibly erosion preceding upper Jurassic (Carmel); erosion between upper Jurassic and Cretaceous (?) (Morrison), and between Cretaceous (?) and upper Cretaceous.

Stratigraphic Position of the Big Lime in West Texas

By E. C. Edwards, the Exploration Co., San Angelo, Tex.—Rapid oil developments in West Texas make necessary an interdistrict correlation for the petroleum geologist. Geologically West Texas is a structural geosyncline, and during Permian times it was a basin of deposition.

The Permian sea invaded from the Southwest. Clastic sediments were derived from ancient Llanoria, from the Wichita Mountains, the igneous ridges of the Panhandle and from the Ancestral Mountains of New Mexico. This material formed a fringe of red clastic sediments around the landward portion of the Permian sea. These, when traced seaward in directions normal to the strand lines, grade into marine sediments, chiefly dolomitic limestones.

The latter constitute what is called the "Big Lime." The top of the "Big Lime" is the keybed used in subsurface work in West Texas. The upper part of the "Big Lime" series is found to be of Double Mountain age, and may correlate with the Word formation of the Glass Mountains area, and the Delaware formation of the Trans-Pecos area. It is considerably higher stratigraphically than the "Big Lime" of the Panhandle district.

Following the deposition of the "Big Lime," a closed or restricted basin developed; so that the upper Permian measures are chiefly chemical salts deposited from supersaline water.

New Faunal Evidence From Tensleep Formation

By A. E. Brainerd and L. A. Keyte—This paper lists and discusses a fairly good sized fauna found in the Tensleep formation in the Big Horn district of Wyoming. Suggestions for Rocky Mountain and Mid-Continent equivalents are given.

Carolina Texas Gas Field, Webb County, Texas

By P. W. McFarland, Dallas, Tex.—The accumulation of oil and gas in the

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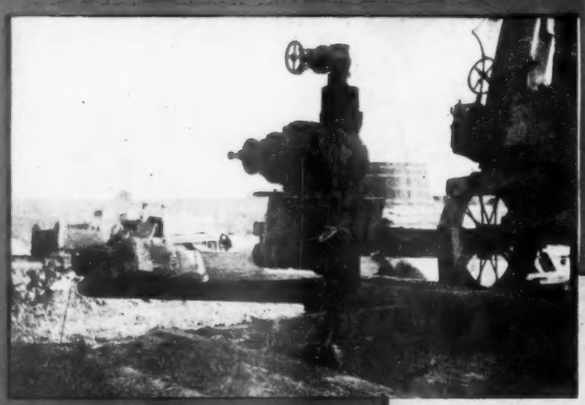

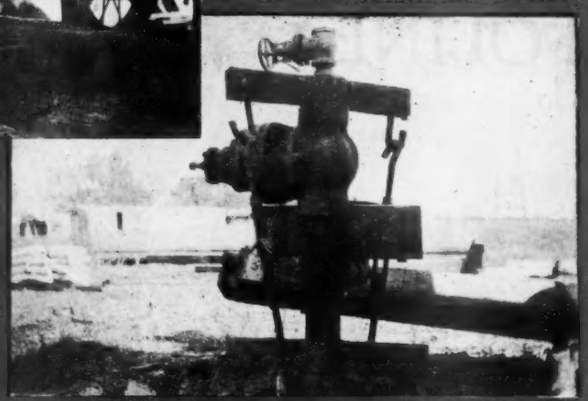

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Carolina Texas Field is due to a combination of faulting and sand lensing. No evidence of displacement is found at the surface, due possibly to the covering of Reynosa sands and gravels.

The present position of the Reynosa escarpment, which appears to be an erosional escarpment, represents old shore line conditions coinciding roughly with a zone of fracturing and faulting that can be traced for approximately 150 miles through Starr, Jim Hogg, Zapata, Webb, Duval and McMullen Counties. Due to the resistance to weathering of the siliceous cemented sandstone of the Reynosa, the old land mass to the west has been eroded away faster than the Reynosa leaving the present escarpment.

Although the Carolina Texas Field is primarily a gas field, high gravity oil has been found recently in the 2,600-foot and 2,800-foot sands. Oil production in these sands, however, has proved disappointing up to the present time. An interesting feature of this field is the marked increase in gravity of the oil with depth.

Use of Evolutionary Changes in Geologic Correlation

By N. L. Thomas, Pure Oil Co., Mexia, Tex.—Faunas change and species change and the study of the progress and directions of the evolution are useful in micropaleontology. This is illustrated in cases where varieties are new but obviously belong in a sequence or trend and where their places may be determined by interpolation, and from that something may be concluded as to their place in the time scale.

The Bradford Oil Field

By Jerry B. Newby, Paul D. Torrey, Charles R. Fettke, and L. S. Panyity.—The Bradford Oil Field is of peculiar interest for several reasons. It is located about equidistant between the place where oil was first discovered in America and the famous Drake well. Its 85,000 acres of continuously productive territory from the Bradford sand, its 25,000 producing wells, and its 55 years of productive history makes it one of the most outstanding oil fields of the world. It has received much publicity because of the successful use of water flooding for increasing oil recovery within the past 20 years. The field was opened in 1871 and the peak of production was reached in 1881 when 23,000,000 bbls. of oil were produced. The present production is about 3,700,000 bbls. per year.

The stratigraphic column of the Bradford oil field is limited to the Paleozoic. The principal oil-producing horizons are in the lower part of the Chemung formation of upper Devonian age. The reservoir rocks are very fine grained and tightly cemented sandstones. The most important sand, the Bradford, has an average thickness of 40 feet and an average porosity of 14.7 per cent.

Two anticlines, plunging southward, and converging northward into the Knapp Creek Dome, with a closure of about 250 feet have been the dominating factor influencing oil accumulation in the Bradford sand. This structure was also a primary influence in the accumulation of oil and gas in the minor productive sands although the irregular depositional character of these minor sands has been an important contributing factor in limiting production.

Bradford oil averages about 45.5 degree A. P. I. and is widely known for its high grade lubricating fractions. Gas wells were rare in the original development of the field. On the Knapp Creek Dome and at intervals along the crest of the anticlines, the upper part of the Bradford sand was a gas pay. The original rock pressure was presumably subnormal but data on this are indefinite.

The Bradford sand thins out on the east edge of the pool. Elsewhere edgewater is present. Encroachment has been so very slight that from existing operating records it is impossible to establish any definite rate.

Kerogen and Its Relation to Petroleum

By F. M. Van Tuyl, G. L. Shue and G. W. Thomas, Golden, Colo.—Previous work bearing on this problem is reviewed and the results of further experiments are discussed. The flowage of a Kentucky oil shale over a period of 31 days resulted in a marked decrease in the solubility of its kerogen content as compared to that of the untreated shale. Preliminary laboratory tests on the effect of soaking ground oil shale in sea water over a period of six weeks has shown that in some cases at least, the kerogen content has become more refractory toward solvents as a result of this treatment.

The influence of the size of grain of oil shale upon the solubility of kerogen has been further investigated. The results indicate beyond question that the solubility of kerogen is a function of the size of the particles, increasing with the fineness of the material.

Western "Red Beds," Marine or Nonmarine?

By E. B. Branson—Triassic and Jurassic "red beds" of the Rocky Mountain region have two sharply contrasted types of lithology, one of marine origin and the other nonmarine.

The nonmarine type is very limited in extent excepting in the Chinle and Dockum formations. Evidences of nonmarine origin are: Lack of sorting of sediments, lack of continuity of beds, absence of ripple marks, presence of fossils of land vertebrates.

The marine type, which is far more important, has continuous and uniform beds, well sorted sediments, no fossils of land vertebrates, extensive ripple marks.

A map showing a great river rising west of the Appalachian Mountains and emptying into the Triassic sea in New Mexico is shown.

Some Problems of the Chugwater-Sundance Contact in the Big Horn District of Wyoming

By A. E. Brainerd and I. A. Keyte—This paper considers the finding of a Sundance fauna in a horizon now included in the Chugwater formation. Suggestions are given for a new devision and sections illustrate the conditions found.

Origin and Significance of "Epiant'clinal" Faults as Revealed by Experimental Studies

By Theodore A. Link, Chicago, Ill.—The development or growth of an anticlinal causes stretching or tension within the beds in the longitudinal as well as the transverse cross section of the resulting fold. "Epianticlinal" or transverse faults are tension fissures which develop contemporaneously with the growth of the anticline. Displacements along such transverse tension fissures are also contemporaneous phenomena and give rise to "hinge," normal, high-grade thrust, as well as horizontal faults.

Deep-seated stresses are conducive to the formation of broad uplifts such as plateaus, and, in a smaller scale, domes and short anticlines with relatively low dips. Such domes or short, oval-shaped, plunging anticlines as observed along the eastern Rocky Mountain front, which are the result of lateral compression, owe their relatively short longitudinal extent to deep-seated stresses concentrated at a point and diminishing rapidly laterally as well as upward toward the surface.

The development of "epianticlinal" faults which converge toward the locus of maximum active stresses is a necessary corallary to the described conception. The application of this principle to field conditions shows conclusively that the active stresses which caused the building of the Rocky Mountains came from the west, and consequently all theories postulating active stresses working from east to west must be discarded as untenable.

(Note: The origin of "epianticlinal" faults is only one of numerous principles which came to light during an intensive study in experimental structural geology extended over a period of one year. Other important phenomena and features such as "enexchelon" folds, "discoidal" faults, arcuate mountain ranges, over, under and lateral-thrust faults, surficial and deep-seated rotational stresses, igneous intrusions and extrusions with interesting sidelights on salt dome formation, etc.,

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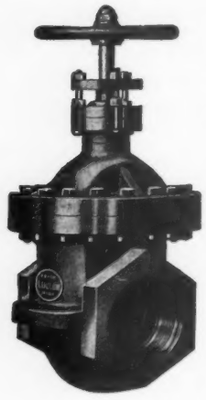

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were observed and reasonable explanations of their mode of origin and development have been formulated, but their presentation at this time is not possible. More than 150 photographs illustrating these experiments are available for examination in the exhibit room.)

Structural History of Parts of Southeastern Utah Based on Interpretation of Geologic Sections

By H. W. C. Prommel and H. E. Crum, Denver, Colo. — This paper briefly summarizes recent developments in southeastern Utah. Detailed study by the authors in the Green River Desert of Utah during 1926 revealed the presence of extensive areas which were subjected to repeat uplift prior to the post-Cretaceous period as well as of other areas which remained comparatively dormant. This paper also answers criticism to the salt dome theory advanced by the authors in 1926.

Sedimentation of the Pico Formation in the Ventura Quadrangle, California

By Lon D. Cartwright, Jr., Beaumont, Tex.—The Ventura region is mountainous, the ranges trending east and west along the outcrop of folded and faulted Cretaceous, Eocene, Oligocene (?), Miocene and Pleocene strata. The pre-Pliocene formations consist of about 23,000 feet of conglomerate, sandstone and shale, with a little limestone and dolomite. The stratigraphy and petrology of these formations is summarized.

The Pico formation, which is divided into upper and lower members, comprises the loser 12,300 feet of the 15,000 feet of the Fernando group (Pliocene) exposed in the quadrangle, and is composed of conglomerate, sandstone, and clay. The Ventura Avenue oil field produces from the lower Pico, and the fields of the Los Angeles Basin produce from the Fernando group, probably, in part at least, equivalent to the Pico. The depositional structures, compositions and diagenesis of the Pico are discussed. From a comparison of the petrology of the older formations with the petrology of the Pico, and the finding of fossiliferous pebbles in the Pico conglomerates, it is concluded that the detritus forming the Pico was derived to a very large extent, if not entirely, from the Cretaceous, Eocene, Oligocene (?), and Miocene rocks which formed a landmass just north of the present occurrence of the Pico. From a consideration of the stratigraphic and structural evidence, it is concluded that the lower Pico formation was deposited under marine waters in near-shore, littoral and deltaic environments. During the deposition of the lower Pico, which took place rapidly, the bottom receiving deposition was subsiding and conditions changed rapidly from place to place. The upper Pico is either a near-shore deposit adjacent to a landmass of low relief, or an off-shore deeper water phase of the formation. It was laid down under stable conditions in the Ventura Quadrangle.

Recent Petroleum Activities on the Olympic Peninsula, Washington

By Dr. R. H. Palmer, Seattle, Wash. The Olympic Peninsula is located in the extreme northwest corner of the United States. Geological investigation is greatly hampered by forest growth and by glacial till and outwash. The geologic column is confined to the Tertiary and Quaternary. The Oligocene, Miocene and Pleistocene. The Eocene has been reported. The series is composed of more than 40,000 feet of shales, basic agglomerate, sandstone and conglomerate. In one of the thick shale series occur two oil and several gas seeps. Within 1,500 square miles in the northwestern part of the peninsula the only metamorphic rocks known are in one small locality on the coast at the Point of Arches.

The mail structure is an extensive faulted anticline extending from Cape Flattery south of east 60 miles or more. Minor structures as faults and folds parallel this structure. A fold reflected in the Pleistocene deposits is to be drilled for petroleum.

Geology and Petroleum Resources of the San Marcos Quadrangle, Texas

By E. W. Brucks, Tampico, Mex.—The San Marcos Quadrangle is located on the landward edge of the Texas Gulf Coastal Plain, about 60 miles southeast of the Texas Central Mineral Region igneous uplift. The area of the quadrangle is about 1,060 square miles, or nearly one twenty-fifth of the area of Texas. The surface formations comprise the upper Comanchean, all of the upper Cretaceous and the Midway, Wilcox, and Claiborne of the Eocene Tertiary. All the upper Comanchean and upper Cretaceous formations exposed at the surface are encountered in the subsurface on the area of Tertiary outcrops. No evidence of major unconformities is revealed by the drill.

The quadrangle embraces a sector of the Balcones Fault zone. The regional dip throughout this area is southeasterly. The principal structures are faults roughly paralleling the strike of the formations. Four distinct fault systems occur within this area—the main Balcones, with the downthrown side on the southeast; and the Staples-Lytton Springs, Luling-Bordette Wells-Cibolo, and the Manford (Bethany Church) systems, which have the downthrown sides on the northwest.

Two oil fields occur within the area—namely, the Luling and the Lytton Springs Fields. The Luling structure is a closed uplift of the faulted monoclinal type and is located on the lower Wilcox outcrop. The Lytton Springs structure is a domal uplift originated by an intrusion of igneous material along a small fault and is located on the Midway outcrop. In the Luling Field the oil produced from the top of the Edwards limestone. In the Lytton Springs the oil is produced from a porous, intrusive mass of Serpentine encountered in the lower Taylor formation.

On December 31, 1926, the total production of the Lytton Springs Field was 4,643,000 bbls. and the daily production was about 3,000 bbls. On this date the total production of the Luling Field was 31,672,000 bbls., and the daily production was about 18,900 bbls.

Calcium Chloride Waters, Connate and Diagenetic

By Alfred C. Lane, Barnum Museum, Tufts College, Massachusetts. — Corrects the statement by Hudson and Taliaferro that the author considers them bitterns and argues for their production by absorption of water and magnesia (and perhaps solution of chlorine) in the chloritization or similar alteration of volcanic ash such as that to bentonite. Suggests that volcanic ash showers may have had something to do with the "devastation" of the life which was the original source of the petroleum as well as have furnished a silico-chloride glass, the leaching and alteration of which yielded chlorine and absorbed the magnesia and water to produce the salt waters that go with the oil. Maintains that the original Na:Cl ratio of the ocean has increased during geologic time and may still be identified to some extent.

Oil and Gas Prospects on East Coast of North Island, New Zealand

By Frederick G. Clapp, New York.—At the New York meeting a summary of the oil and gas prospects of New Zealand as a whole was presented. The present paper acts as a supplement to that discussion, presenting the criteria of occurrence in the New Zealand district which has strongest indications, and describing the stratigraphy and types of structure in more detail than was previously desirable.

The formations range in size from Jurassic to recent, the principal seepages arising from rocks of Cretaceous age, although much gas escapes from Miocene strata. Metamorphic conditions appear favorable. The structures are of two main types (a) strongly folded anticline with a central crushed zone or "diapir" of Cretaceous age from 1,000 to 2,000 feet in breadth and of unknown depth, bounded by faults and steeply dipping Miocene clays, and (b) moderately folded (up to 45 degrees) Miocene and Creta-

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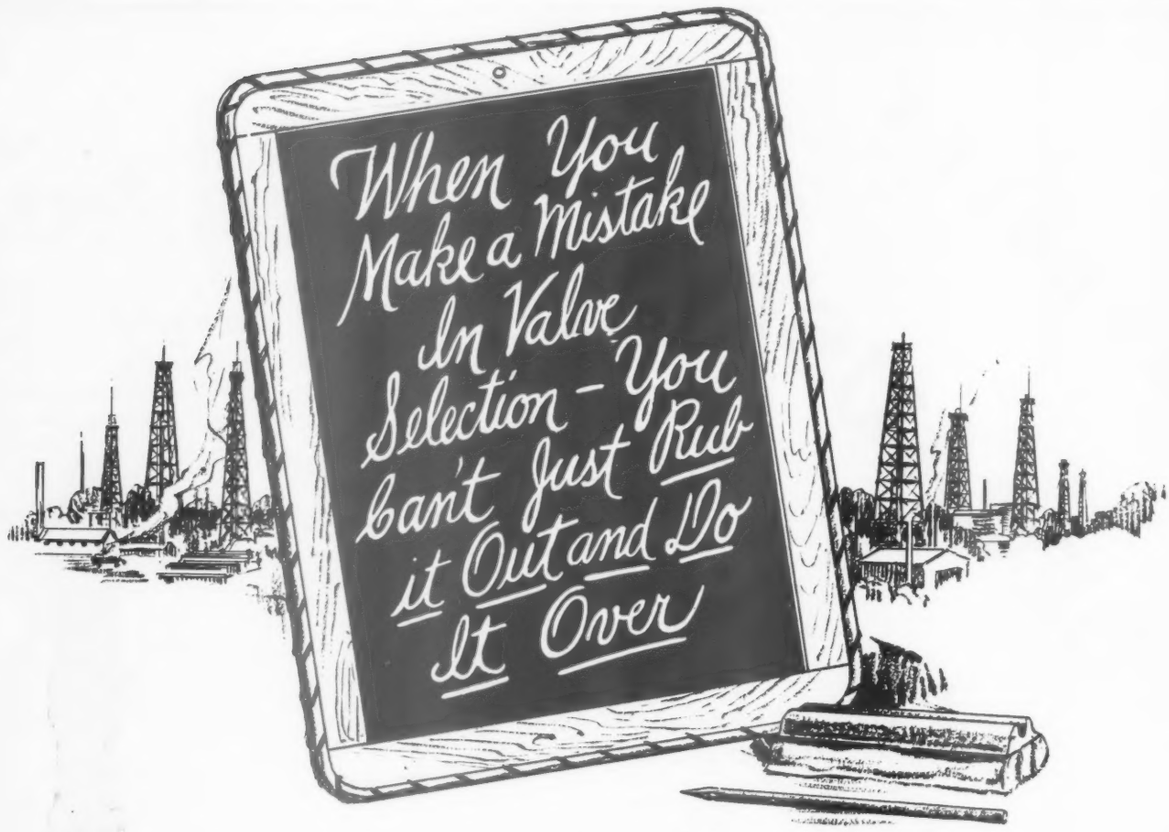

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ses domes. The possible containers e an igneous conglomerate and Creta- ss and Miocene sandstones. Test wells being sunk in the district.

Typical Oil Pools in West Virginia By Ralph E. Davis and Eugene A. henson, Pittsburgh, Pa.—Even though est Virginia is the state where the nclinal theory received its earliest ctical application, later developments e proved that the state also contains outstanding examples of synclinal oil ls. This is especially true in the uthern part of the state where such im- rtant synclinal pools as the Tanner ek Field of Gilmer County, the oser Pool and the recent Grann's ek Pool of Clay County, a portion of e Clue Creek and Clendennin Pools of anawha and Kanawha Counties, and the g Creek Pool of Lincoln County are ated. In the central part of the state e Copley Field of Lewis County and e Wolf Summit Fields are the major nclinal areas. Some of the synclines e closed structures while others are en.

The following are the important sands hich produce oil from synclines: Maxon, ener, Berea, Big Injun, Weir, Gordon.

neration of Oil by Geologic Distillation By John L. Rich, Ottawa, Kans.—In gions of intense mountain folding, such the Appalachians or the Ouachitas, we nd black, carbonaceous shales which ave lost the oil which, presumably, they ave contained and which is still pres- nt in equivalent rocks outside the meta- rphosed zone. What became of this il? Considerations of the broader geo- gic relations at the time of mountain lding indicate that the folding took lace at great depth underneath over- hrust sheets of, perhaps, Alpine propor- ions. Conditions would seem to have een favorable for extensive distillation f oil from carbonaceous beds. Oil and as distilled under such conditions would nd easiest escape laterally along the olding, and would be driven out to ooler zones under the influence of heat nd the gases generated by the distilla- ion.

In later geologic ages, by well-known rocesses of mountain evolution the old ountain area would become worn away nd later broadly uplifted, bringing the ocks formerly subjected to distillation p to the surface and opening their por- us beds to the inflow of meteoric waters. n this stage further distribution of the il previously generated would take place nder the influence of artesian circula- ion.

The working hypothesis is advanced hat a major part of the world's oil may ave been formed by such processes of eologic distillation associated with moun- ain building and that much of it, out- ide the zones of active distillation, may ave migrated more or less widely to its resent resting places under the influence f secondary agencies.

Under this hypothesis three zones may e recognized; (1) Zone of complete dis- illation—no oil remaining, carbon ratios igh, carbonaceous rocks devolitilized; (2) zone of distillation and secondary ac- umulation—oil partly distilled in place, artly migrated from adjacent zones of more intense metamorphism; carbonace- us rocks partly devolitilized; (3) zone f secondary accumulation—situated out- ide of zone of active distillation, oil mi- rated from adjacent zones under influ- nce of gas pressure and artesian circula- ion, carbonaceous rocks still in state of oil shale."

Such a working hypothesis explains many facts not readily understood other- wise.

GULF COAST CRUDE IN STORAGE MARCH 1

By P. L. McGreal

HOUSTON, Tex., Mar. 26.—Stocks of Gulf Coast crude in steel and earthen storage on March 1, totaled 14,355,457 bbls., of which 8,740,207 bbls. were in steel tanks and 5,615,250 bbls. in earthen reservoirs. Compared with March 1, 1926, this is an increase of 1,408,917 bbls.

The earthen reservoirs, once a feature of all Coastal pools, are gradually being discarded for storage purposes. They were erected during the early days at Spindletop, Sour Lake, Humble, Saratoga and at West Columbia. During those days of large flowing wells steel tanks were difficult to secure and erect quickly, the fabrication being all done in the North. The earthen reservoirs afforded a quick and easy means of providing storage in large amounts. The capacities ranged from 250,000 to 1,000,000 bbls., being merely excavations on the prairies adjacent to the wells. About 10 years ago the pipe line companies adopted the policy of covering these excavations with wooden roofs to reduce the losses from evaporation which was very heavy in this land of almost constant sunshine.

As the value of Coastal crude increased steel tanks replaced the open or wooden-roof earthen storage tanks. The last earthen storage to be excavated was during the boom at South Liberty in 1924, but the pool declined so rapidly the tanks were not used.

The flush deep sand production went into steel storage. The Petroleum Iron Works of Sharon, Pa., made a record there, sending down special train loads of fabricated steel which was rapidly assembled for the Yount Lee Oil Co. and other operators there. More than 50 of the 55,000-bbl. capacity tanks were erected in little more than 60 days and kept pace with the production.

The Texas Company is now replacing part of its earthen storage at Humble with steel. Construction has started on 8 tanks of 55,000 bbls. each. Some of the old earthen reservoirs are badly in need of repairs and it was considered cheaper to replace them with steel. The Humble Oil & Refining Co. has several earthen covered tanks in service at its Webster tank farm, 25 miles southeast of Houston and in the West Columbia Pool. The Texas Company still uses part of its earthen tanks at Sour Lake. Corrected storage figures are as follows:

Pool—	Bbls. Steel	Bbls. Earthen
Boling	37,200	.....
Batson	4,000	.....
Big Creek	36,800	.....
Barber Hill	800	.....
Dayton	1,850	.....
Damon Mound	16,750	.....
Goose Creek	150,800	96,650
Humble	654,240	2,624,700
Hull	424,600	1,800
Jennings, (La.)	104,200	.....
Lockport, (La.)	115,800	.....
Markham	35,000	.....
Orange	165,280	20,000
Pierce Junction	54,600	.....
Spindletop	2,941,362	.....
Saratoga	371,350	.....
Sour Lake	2,098,000	1,885,000
South Liberty	41,000	.....
Vinton, (La.)	328,800	.....
Welsh-Anse La Bute, (La.)	1,000	.....
West Columbia	1,156,775	987,000
Totals March 1	8,740,207	5,615,250
March 1, 1926	6,399,675	6,546,865
Difference	2,340,532	931,615
Grand total March 1, 1927		14,355,457
Grand total March 1, 1926		12,946,540
Difference		1,408,917

Light Gravity Crudes in Coastal Tank Farms—March 1, 1927

Tank Farm, Company—	Steel
Almeda, Gulf Prod.	73,800
Crosbie, Gulf Prod.	103,900
Englewood, Humble O. & R. and Republic Prod.	1,196,790
Lynchburg, Gulf Prod.	90,130
Baytown, Humble O. & R.	1,948,500
Norsworthy, Galena Signal	335,000
Pasadena, Crown Central et al	300,500
Sinco, Sinclair Refg. Co.	593,000
Texas City, Miscellaneous	264,000
Webster, Humble O. & R.	1,158,000
Total March 1, 1927	6,063,620
Total March 1, 1926	6,971,540
Decrease	907,920

Southwest Fields

Luling	780,500
Lockhart	2,900
Mirando	1,381,100
Total March 1, 1927	2,164,500
Total March 1, 1926	960,120
Decrease	1,204,380

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Turkish Petroleum Co. has increased its capital to £2,000,000 from £1,000,000. The French group is increasing its capital to 75,000,000 francs from 50,000,000.

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NEW OIL AND GAS LEASE RULES BY NEW MEXICO LAND COMMISSIONE

By Special Correspondent

ARTESIA, N. Mex., Mar. 26.—State Land Commissioner B. F. Pankey has announced a new set of rules, governing oil and gas leases, effective March 23:

The 1-cent lease heretofore issued is abolished, and a limit of 10,000 acres is put on leases, some of which in the past have been executed for as much as 100,000 acres.

The minimum rental is fixed according to production, the state being divided into four districts, District No. 1, where the minimum is highest, being the Artesia oil field and District No. 4 the San Juan Field.

Lands within 5 miles of a producing well will be leased only to the highest bidder at public auction.

The new rules follow:

Rule 1—As provided by statute, the minimum first year's rental on any lease shall be $100.

Rule 2—Not more than 10,000 acres may be embraced in any one lease, except upon special showing of the necessity for varying this rule, and with the express consent of the commissioner.

Rule 3—Application fee shall be $5 for application covering 5,000 acres or less, and $10 for more than 5,000 acres.

Rule 4—The minimum annual rental which will be accepted shall be as follows:

District No. 1: Fifty cents per acre. This district embraces Townships 16 to 20 South, Ranges 26 to 39 East and Townships 21 to 26 South, Ranges 27 to 39 East.

District No. 2: Twenty-five cents per acre. Townships 1 to 15 South and 1 to 32 North, Ranges 28 to 37 East.

District No. 3: Twenty-five cents per acre. Townships 14 to 18 South and Ranges 16 to 20 East.

District No. 4: Twenty-five cents per acre. Townships 16 to 32 North, Ranges 1 East to 21 West; also Township 14 North, Ranges 8, 9 and 10 West; Township 15 North, Ranges 5, 6, 7, 8, 9 and 10 West and Townships 11 to 15 North, Ranges 18 to 21 West.

All lands not within one of the above districts, 5 cents per acre.

Rule 5—Leases will be made either with or without advertising and either on drilling form No. 39 or nondrilling form No. 30, as applicant may request or the commissioner may determine, the commissioner reserving the right in all cases to lease only on drilling form No. 39 or only upon advertisement and sale to the highest bidder.

Rule 6—Lands lying within 5 miles of a producing or productive oil or gas well will not be leased except upon advertisement and sale at public auction.

Rule 7—A preference will be given to applicants for drilling lease over those applying for nondrilling lease, and to applicants applying for an advertised lease over those applying for a lease without advertisement.

Rule 8—Subject to special rules governing disposition of applications received on or prior to March 22, 1927, applications will be disposed of according to the time of their receipt. Applications received in the open mail will be treated as filed at 9 a. m. on the day of their receipt.

Rule 9—Applications must be accompanied by the required filing fees and the amount of the first year's rental offered, and payment must be made in cash, money order or acceptable certified exchange. A separate sheet containing the descriptions of the lands applied for must accompany each application blank and the appraisement.

Rule 10—No lease will be issued for lands which do not fall within a 50-mile square, and applicants will be required to take all lands open for lease in any section applied for.

Rule 11—Where simultaneous applications are filed for the same lands they will be disposed of as the interested parties may stipulate in writing, or [illegible] commissioner may request the conflicting applicants to submit amended applications and preference will be given according to the highest rental offered.

Rule 12—No leases will be made [illegible] nonclear listed lands nor for any land where the records show the title of the state to be in question or dispute.

Rule 13—Where existing leases are surrendered and applications made for new lease, such new lease will be made in accordance with the schedule of minimum rentals as specified in Rule 4, but in no case will a new lease be made at a lower rental rate than that carried by the lease surrendered.

Rule 14—Where applications are filed for lands lying in two or more districts carrying different minimum rentals such lands will be considered as falling within the district carrying the higher rental.

Rule 15—Application filed for land not shown cancelled or open on the tract books will be rejected.

Rule 16—Before a lease will be issued upon lands on which purchase contract or deed is outstanding, applicants must file a bond in the sum of not less than $2,000, condition as required by Chapter 137 of the Session Laws of 1915. Where a greater bond is required, applicants will be so advised. Surety on such bonds may be corporate, or personal surety to be acceptable when the same are residents of and own property within the state of New Mexico and qualify in an amount equal to double the penalty of the bond.

Rule 17—The commissioner reserves the right to reject any and all applications and to impose higher rentals, additional restrictions and requirements whenever in his judgment it shall be to the best interest of the state.

DOMINION OFFICIAL IN CANADIAN REVIEW

By G. S. Hume

Geological Survey of Canada

In the Turner Valley Field and adjoining areas southwest of Calgary, Alberta, more than 25 wells were begun drilled during 1926. Turner Valley became prominent as an oil field on account of the production secured in Royalite No. 4 well over two years ago. During 1926, this well is unofficially reported to have produced 193,723 bbls. of 73 degree Baume naphtha, the daily average of production being approximately 530 bbls. This production is secured from dolomite of supposed palaeozoic age at a depth of 3,740 feet. During 1926 three other wells, McLeod No. 2, Illinois-Alberta and Vulcan No. 1, were drilled into the productive horizon and the Illinois-Alberta and Vulcan wells are now producing about the same grade of naphtha as Royalite No. 4. McLeod No. 2 well also produced, but owing to drilling difficulties the flow of gas and contained naphtha has been temporarily shut off, but undoubtedly will be recovered unless further difficulties develop. The production from these wells proves a porosity in the productive horizon over a wide area in Turner Valley, and, in the hope that the productive zone will extend the whole length of the Turner Valley structure, wells are being drilled throughout a distance of about 12 miles.

During 1926 drilling was done in several other prospective areas within the foothills. These include the Jumping Pound and Moose Mountain areas south of Bow River, the Highwood area, the Rice Creek area west of Nanton, etc. No wells have yet reached the large productive horizon of Turner Valley. In the northern foothills, the Coalspur well of the Imperial Oil Co. has been abandoned at a depth of 4,305 feet without any

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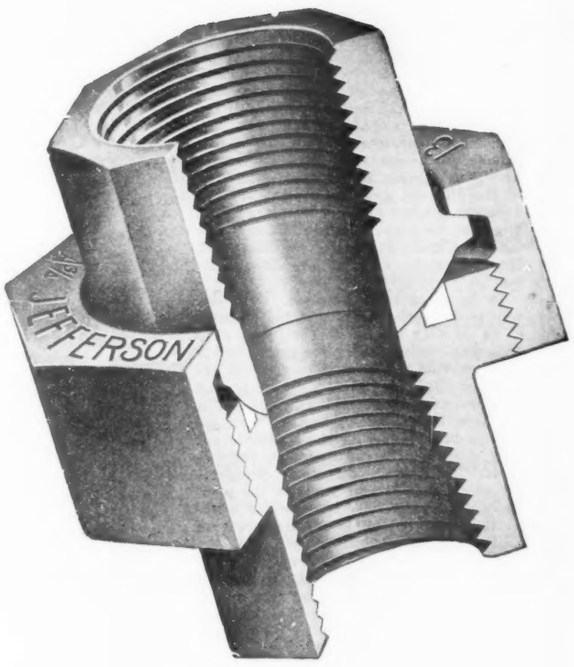

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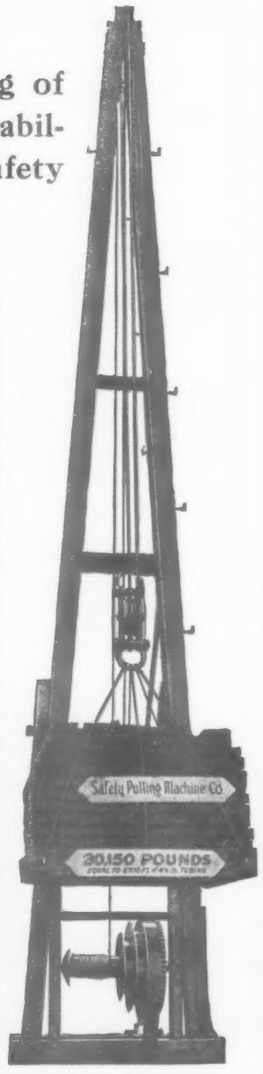
Reel or Drum; 32 lb. 8¼ casing filled with concrete for winding drum, differentials banded with 3/16 band iron, brake surface 6"x40", choke brake style same as Star drilling machine.

The whole reel assembly is mounted on 2¾ square steel shaft extending clear through reel, secured by three heavy castings.



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prospects of production having been secured.

Plains Area

In the plains area, No. 1 Roth well, being drilled in the Medicine Hat gas field, obtained gas in the Medicine Hat gas sand, but no further production of oil or gas at that depth. The well has been abandoned, except as a gas well, and No. 2 well is being drilled. The Imperial Oil Co.'s well, that is being drilled on the Bow Island structure, found an oil sand in the lower Cretaceous, but a test of the well failed to give commercial oil production and the well is being deepened.

In east central Alberta, the Imperial Ribstone No. 1 well, drilled on the structure outlined by the geological survey in 1925, obtained a gas flow unofficially estimated at about 4,000,000 feet per diem at about 1,400 feet deep. Between 1,870 and 1,900 feet an oil sand was encountered and tested. Bailing was continued for several days, but the flow was only about 5 bbls. per diem of 18 degree Baume oil, accompanied by some water. The well is being deepened. As the core of the oil sand gave reason to hope for a larger production, and the large flow of gas at the higher horizon indicated the structure to be favorable, the results of the test of the oil sand are disappointing.

It is recognized, however, that one well is not sufficient to test the porosity of sands that have now been proven to have prospective productive value, and it is understood that a number of wells are to be drilled in 1927. Two wells, the Ribstone Oils' No. 1 and Advance No. 3, are now being drilled, and as their locations in reference to the structure are only slightly different than that of Imperial Ribstone No. 1, their prospects for production depend, first, on the presence of a larger effective porosity within the saturated oil sand than occurred in the Imperial Ribstone well, and, second, on sufficient pressure of gas within the oil sand to drive the oil into a well. It is considered that the favorable indications of the Imperial well justify drilling of a number of other wells on various parts of the structure in an attempt to locate a productive area within the oil horizon.

Wainwright Field

In the Wainwright Field during 1926, three wells were drilled to the cretaceous sand productive in No. 3-B British Petroleum and Edmonton Wainwright wells. Of these three wells the Emerald found the sand "tight" and secured no production, although the well is being deepened and is now in the Devonian limestones underlying the cretaceous. The Western Consolidated obtained oil at the productive horizon, but the capacity is unknown, and the dome has reached the productive sand but has not yet made a production test. The official production of the Wainwright Field for 1925 was 4,650 bbls., but as yet no figures are available for 1926.

In the Ontario Field, according to a communication from the natural gas commissioner, there have been no new discoveries made in 1926, and all exploratory work has given negative results. It is understood that the Imperial Oil Co. has optioned practically the entire Bothwell Field, with a view to mining the oil sands by the Ranney process. Three diamond drill holes to test the character and thickness of the oil sands have been bored, but no results are available. The Bothwell Field is in Kent County, and comprises an area about 5 miles long and less than a mile wide. It has produced oil continuously since 1896 from wells 375 to 400 feet deep in the Onondaga limestone of Devonian age.

F. L. CLEMENTS DIES

HOUSTON, Tex., Mar. 26.—Frank L. Clements, aged 64 years, died at a hospital here after an illness of eight weeks. He was traffic manager of the Gulf Pipe Line Co. for 20 years and was widely known among oil and railroad circles. His wife, one daughter and two sons survive. Deceased was born at Ladoga, Ind., and came to Texas 31 years ago.

IDENTITY OF PONDS SURVEY SUIT BASIS

HOUSTON, Tex., Mar. 26.—A case involving title to alleged "vacant" tracts in the Humble Pool is now on trial in the District Court at Austin. The value of the oil taken from the land during the past 18 years is estimated at $12,000,000. Sixty defendants, including such companies as The Texas Company, Humble Oil & Refining Co., Galena Signal Oil Co. and Gulf Coast Oil Corp., are named. All the defendants have operated at one time or another on leases alleged to be within the limits of the 600 acres alleged to be vacant land.

It is estimated the hearing of the testimony will consume six weeks. The pleadings in the case cover more than 1,000 pages of legal cap typewriting. The case has been hanging fire for several years. One attorney general of the state declined to prosecute it, claiming no just grounds existed for a suit.

The history of the suit in brief is as follows: Two ponds of water and the locations form the basis for the litigation. The ponds are on opposite sides of a road. One was made the beginning of a survey of land and is described in the notes of the survey. The court will be called upon to describe which is the pond from which the original survey started. The ponds are about equal in area. The survey is mapped as the James Durham. Starting a line from one of the ponds, which are dry much of the year, corroborates the present maps and measurements, which have been in use in the pool for years. Measuring from the other shows a vacancy of some 600 acres. This was filed upon several years ago by Mrs. Gertrude Goldman of this city under what is known as the scrap act, which gives citizens the right to file on and take possession of scraps of land or tracts that have been left out of surveys or constitute excess surveys. C. G. Perkins of this city about the same time filed on the mineral rights to the 600 acres with the State Land Department. Some of the defendants leased the mineral rights from Perkins. The court will be called upon to decide whether Mrs. Goldman's file or the Perkins file on the mineral rights shall be recognized. The state becomes a party to the suit through its giving Mrs. Goldman permission to file her claim.

The legal departments of the various oil companies named as defendants are confident their titles will be upheld.

TO BEGIN PIPE LINE TO FORT WORTH PLANTS

FORT WORTH, Tex., Mar. 26.—Construction work will start about April 15 on the pipe line that will connect the Fort Worth helium plant with the Nocona gas field of Montague County, according to C. F. Cook, government engineer if charge.

The pipe line will be built from the Nocona Field to a point 5 miles north of Bowie, where it will be linked with the line that has been supplying the Fort Worth plant with its gas supply for eight years.

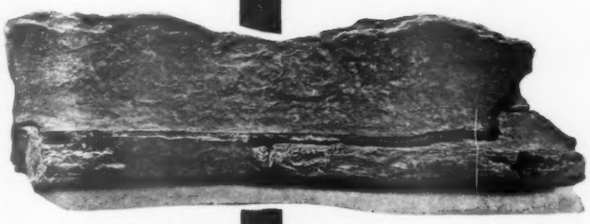
When the project finally is completed, the government plant will be enabled to operate to its full capacity of 10,000,000 feet of helium gas per day, an output that has been equaled only one month since it was constructed.

Work will begin from the Nocona end of the line. Bids for construction work have been received and will be opened March 31.

The pipe line project was made possible through a government appropriation of $550,000.

LARGEST DIESEL MOTORS

Work on two new Cosulich motor liners, Saturnic and Vulcania, which are being fitted with the largest Diesel engine marine motors in the world, is progressing rapidly at Trieste.



This is scale—the enemy of boiler efficiency - - - a Graver Water Softener eliminates this.

Those new boilers may not be necessary!

Before you add any new boilers, why not find out if the ones you have can give you the capacity you need.

Using a hard feed water will cut down the capacity of a boiler an almost unbelievable amount. When you consider that scale —the product of hard water—insulates your boiler tubes as efficiently as asbestos it stands to reason that a scale coated boiler is a mighty inefficient piece of equipment.

Why not get all possible out of your boilers and at the same time get rid of all the petty annoyances caused by hard water? A Graver water softener will take the hard water you are now using and deliver it to your boilers soft and clean.

There are several types of water softening equipment. Each has certain qualities for certain definite uses. As Graver builds all these types a recommendation from Graver means that unbiased judgment specified the equipment for your particular needs. This is especially essential where the softened water has more than one use—for example boiler feed water and condenser cooling water.

We will be glad to study your water conditions with you.

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Any Size Tanks Erected Anywhere
Elevated Tanks
Refinery Equipment
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Mexican Shipments Show Big Decrease During Past Year

By George Blardone

TAMPICO, Mexico, Mar. 26. — Shipments of petroleum from Mexican ports of primary clearance in the month of February totaled 4,545,080 bbls., a decrease from January of the present year, of 277,367 bbls. At the same time it was a decrease from February, 1926 of 2,331,-618 bbls. The figures speak for themselves.

It will be noted that once again asphalt plays a prominent part, figuring 106,342 bbls. of which one cargo of 38,722 bbls. went to Australia. It might be said that this is the first cargo consigned to Australia in the last decade.

The shipments follow in detail:

From Tampico

By Huasteca Petroleum Co.

Feb.	Rig.	Vessel and Destination—	Bbls.
1	Ss	Norman Bridge, Providence	*40,988
3	Ss	E. L. Doheny, New Orleans	59,836
4	Ss	C. Anderson, Baltimore	65,048
5	Ss	Inverurie, Southampton	*57,190
5	Ss	O. D. Bennett, Jacksonville	*48,636
6	Ss	Inverleith, Southampton	*56,649
7	Ss	P. H. Harwood, Providence	*64,922
8	Ss	F-Sulphur 6, Tampa	*39,956
9	Ss	J. O. Boyd, Tampa	†19,678
11	Ss	C. E. Harwood, Jacksonville and Miami	†35,109
11	Ss	J. M. Danziger, New York	*68,339
12	Ss	Elisha Walker, Boston	*68,153
12	Ss	Meline, Portland	*63,204
13	Ss	H. G. Wylie, New York	*40,365
14	Ss	Fred. Ewing, New Orleans	68,110
15	Ss	W. L. Steed, New York	†74,189
16	Ss	Pennsylvania, Port Arthur	60,932
18	Ss	O. D. Bennett, Jacksonville	*50,335
18	Ss	Dean Emery, Baltimore	66,560
19	Ss	F-Sulphur 6, Tampa	*40,412
20	Ss	Mendocino, Providence	*62,999
20	Ss	Inveravon, Southampton	*57,061
21	Ss	Harold Walker, New York	*67,658
21	Ss	G. W. Barnes, Boston and Portland	†73,926
24	Ss	Kennebec, Southampton	*49,173
24	Ss	Norman Bridge, Fall River	*41,183
25	Ss	E. L. Doheny, Boston	*60,056
26	Ss	Fred. Ewing Boston	*66,630
26	Ss	J. O. Boyd, Miami	†19,569
		Coastwise deliveries	†30,078
		Coastwise deliveries	*115,394
		Bunker deliveries	110,614
		Total	1,841,941

By Mexican Eagle Oil Co., Ltd.

Feb.	Rig.	Vessel and Destination—	Bbls.
1	Ss	Nauplis, Hamburg, (asphalt)	5,826
2	Ss	San Silvestre, Rio Janeiro	*24,048
2	Ss	San Silvestre, Rio Janeiro	†1,347
11	Ss	Sacotawan, Argentine and Uruguay	†23,811
11	Ss	Sacotawan Argentine and Uruguay (asphalt)	11,675
4	Ss	San Leon, Key West	*56,841
4	Ss	Sabara, Havana (asphalt)	1,158
4	Ss	Sabara, Hamburg (asphalt)	8,699
7	Ss	Apple Leaf, Mariel, Cuba	*36,519
13	Ss	Delaware, Dunkirk, (asphalt)	20,905
8	Ss	San Tirso, Havana	*41,777
8	Ss	San Tirso, Havana	†24,782
15	Ss	Nelson, Key West	*39,477
16	Ss	Apple Leaf, Key West	*35,237
17	Ss	Pear Leaf, Key West	*34,652
20	Ss	Mexico, Hamburg (asphalt)	3,468
22	Ss	Waton, Brazil Ports	†30,447
23	Ss	Dantzig, Hamburg (asphalt)	9,820
24	Ss	San Tirso, Nassau	†20,941
26	Ss	San Valeria, Mariel, Cuba	*58,393
27	Ss	Median, Manchester (asphalt)	5,779
28	Ss	Mineric, Australia (asphalt)	38,722
		Coastwise deliveries	*18,382
		Coastwise deliveries	290
		Coastwise deliveries, (asphalt)	47,536
		Bunker deliveries	684,422
		Total	

By Transcontinental Petroleum Co.

Feb.	Rig.	Vessel and Destination—	Bbls.
2	Ss	Tuxpanoil, Baltimore	66,284
3	Ss	Princeton, Guantanamo	45,980
3	Ss	Hugoton, New York	69,372
8	Ss	Glenpool, Cuba	53,388
12	Ss	Pioneer, Cuba	47,485
15	Ss	Princeton, Cuba	49,670
21	Ss	Mevania, Charleston	68,301
23	Ss	Glenpool, Cuba	51,609
23	Ss	Tuxpanoil, New York	44,414
23	Ss	Tuxpanoil, New York	†30,232
		Bunker deliveries	37,969
		Total	564,704

By Mexican Sinclair Petroleum Corp.

Feb.	Rig.	Vessel and Destination—	Bbls.
1	Ss	Meloria, Flushing	18,376
2	Ss	Harry Farnum, Tarafa, Cuba	29,441
11	Ss	Mirita, Brunswick, Ga.	54,433
13	Ss	W. L. Connelly, Nuevitas, Cuba	30,260
16	Ss	Gene Crawley, New Orleans	32,024
16	Ss	Harry Farnum, Havana	30,310
24	Ss	Madrono, Cienfuegos	58,115
26	Ss	A. E. Watts, Matanzas	68,124
26	Ss	Mirita, Nuevitas	54,356
27	Ss	Gene Crawley, New Orleans	30,726
28	Ss	Harry Farnum, New Orleans	31,495
28	Ss	W. L. Connelly, Belic, Cuba	30,449
		Bunker deliveries	9,757
		Total	477,866

By Cia. Mexicana Holandesa La Corona, S.A., (Royal Dutch-Shell)

Feb.	Rig.	Vessel and Destination—	Bbls.
8	Ss	Maricopa, Nassau f/o	58,676
15	Ss	Belridge, Nassau f/o	59,033
15	Ss	Malacca, Baton Rouge	72,378
17	Ss	Caloria, New Orleans	43,228
19	Ss	San Joaquin, Nassau f/o	58,502
24	Ss	C. Smith, Baton Rouge	71,167
		Bunker deliveries	47,318
		Total	410,302

By Mexican Gulf Oil Co.

Feb.	Rig.	Vessel and Destination—	Bbls.
1	Ss	Beaconlight, Boston	69,161
5	Ss	Currier, Port Tampa	40,674
9	Ss	Ligonier, Savannah	30,286
23	Ss	Ligonier, Port Tampa	30,191
27	Ss	Gulftrade, Galveston	69,133
		Bunker deliveries	9,442
		Total	248,815

By The Texas Company

Feb.	Rig.	Vessel and Destination—	Bbls.
4	Ss	Occidental, Providence	*56,751
15	Ss	Virginia, Matanzas	55,443
		Bunker deliveries	3,788
		Total	115,983

By La Espuela Oil Co.

Feb.	Rig.	Vessel and Destination—	Bbls.
9	Ss	F-Sulphur 1, Freeport	18,896
16	Ss	F-Sulphur 1 Freeport	18,793
20	Ss	F-Sulphur 1 Freeport	19,017
25	Ss	F-Sulphur 1 Freeport (top off)	9,493
		Total	66,199

By Mexican Atlas Petroleum Co.

Feb.	Rig.	Vessel and Destination—	Bbls.
14	Ss	Cassimir, New York	21,008
		Bunker deliveries	2,916
		Total	23,924

By Mexican Oil Products Corp.

Feb.	Rig.	Vessel and Destination—	Bbls.
14	Ss	Cassimir, New York (top off)	23,748

By Moctezuma Terminal Co.

Feb.	Rig.	Vessel and Destination—	Bbls.
10	Ss	Newona, New York	20,844

By East Coast Oil Co.

Feb.	Rig.	Vessel and Destination—	Bbls.
2	Ss	F-Sulphur 1, Freeport	9,634

FROM TUXPAM

By Mexican Eagle Oil Co., Ltd.

Feb.	Rig.	Vessel and Destination—	Bbls.
21	Ss	San Zotico, Santos & Rio Janeiro	*51,266
		Bunker deliveries	5,427
		Total	56,693

February Summary

From Tampico	4,488,387
Tuxpam	56,693
Total February 1927	4,545,080
Total February 1926	6,876,098
Decrease February 1927	2,331,018

Division of Movement

To	
United States	2,601,976
Cuba and West Indies	961,417
Mexican Coastwise	251,034
United Kingdom	225,852
South America	142,594
Continent	48,718
Australia	38,722
Bunkers (to balance)	274,767
Total	4,545,080

Classes

Crudes	2,084,127
Topped Crude	1,611,845
Distillation	467,999
Asphalt	106,342
Bunkers (to balance)	274,767
Total	4,545,080

(Note: * denotes topped crude; † denotes distillates).

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended March 19 totaled 965,000 bbls., a daily average of 137,857 bbls., compared with 1,362,000 bbls., a daily average of 194,572 bbls., for the week ended March 12, and a daily average of 179,357 bbls. for the four weeks ended March 19.

At Atlantic Coast Ports—	
Baltimore	70,000
Boston	131,000
New York	554,000
Philadelphia	.....
Others	40,000
Total	775,000
Daily average	110,714
At Gulf Coast Ports—	
Galveston district	40,000
New Orleans and Baton Rouge	66,000
Port Arthur and Sabine district	25,000
Tampa	59,000
Total	190,000
Daily average	27,143
At All United States Ports—	
Total	965,000
Daily average	137,857
Daily average four weeks ended	179,357

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended March 19 totaled 722,000 bbls., a daily average of 103,143 bbls., against 987,000 bbls., a daily average of 141,000 bbls., for the week ended March 12, and a daily average of 93,321 bbls. for the four weeks ended March 19.

At Atlantic Coast Ports—	
Baltimore	178,000
Boston	.....
New York	544,000
Philadelphia	.....
Others	.....
Total	722,000
Daily average	103,143
At Gulf Coast Ports—	
Tampa	.....
Daily average	.....
Total Atlantic and Gulf Coast Ports—	
Daily average	103,143
Daily average four weeks ended	93,321
Distribution of total California oil receipts is as follows:	
Crude	174,000
Gasoline	78,000
Gas oil	395,000
Fuel oil	75,000
Total	722,000

INFORMATION ABOUT
ETHYL GASOLINE

A Brief Story of ETHYL Gasoline

EVERYBODY has heard that metallic "ping-ping" which occurs when an automobile is laboring up a hill or is called on for a quick pick-up.

Some call it an "engine knock." Others call it a "spark knock." Few know what it really is. But ALL know that it worries the driver, racks the engine, cuts down power, and entails the expense and nuisance of frequent carbon removal. And all wish that pestiferous "knock" could be knocked out.

It can. Ethyl Gasoline "knocks out that 'knock'."

The story of Ethyl Gasoline begins about fifteen years ago — when the automobile was changing from a luxury into a utility.

Then it was that Charles F. Kettering, president of the General Motors Research Laboratories and the man who had just introduced battery ignition and self-starters to the motor world, set out to discover the cause of detonation—or "knocking"—in internal combustion engines. Noticeable since the first days of motor transportation, "knocking" had become more pronounced with the use of the heavier gasoline which refiners had been compelled to introduce in order to meet the growing demand for motor fuel.

Moreover, engineers were finding that as they increased the compression of motors—a thing necessary to increased efficiency—"knocking" increased. Hence, "knocking" stood in the path of automotive progress. (In fact, the compression of the present-day motor car is just under the detonation or "knocking" range when operating on ordinary gasoline under the most favorable circumstances.)

The first job of Mr. Kettering and his associates was to find out just what happens in a gasoline engine when it is "knocking."

Since this involved an action occurring inside a closed cylinder, at a very high temperature and in minute fractions of a second, special instruments had to be invented.

It was a long and painstaking task, but it was a task of tremendous consequence to the oil and automotive worlds. For it led to this discovery:

It is the FUEL and not the engine or ignition that "knocks."

In short, scientific research reduced guesses to facts. It found that the "knock" is actually caused by the too rapid combustion of gasoline in the cylinders, with the result that there is an accumulation of high pressure heat waves which strike against the cylinder walls so violently as to produce an audible metallic sound.

It found too that while some gasolines "knock" more than others, all gasolines "knock" as the compression of the engine is increased. (Carbon deposits increase compression by decreasing the size of the combustion chamber.)

After all, is it very surprising that gasoline should have been found to be in some respects an imperfect motor fuel? It was an accidentally available fuel, of which there was a great deal when the automobile came along. It has made possible the amazing advance of the automobile and is the very keystone of the arch upon which motor transportation has been built. But gasoline always had one bad fault and that is its tendency to "knock."

The so-called "cracking" processes have enabled refiners in the years since to get more gasoline from crude oil and also to decrease to some extent the "knocking" tendency, but no matter what the processes employed, "knocking" characteristics of gasoline still remain.

So having established that gasoline is to blame for that "knock," Mr. Kettering and his colleagues in the General Motors Research Laboratories undertook the second step—the elimination of that "knock." This phase of the research was entrusted to Thomas E. Midgley, Jr., assisted by T. A. Boyd.

It was first determined that the worst "knocking" gasolines—even kerosene, in fact—could be rendered "knockless" by the addition of certain ingredients, the first of which was iodine.

But to be commercially practicable, an "anti-knock" ingredient must be such that it can be produced and sold at a cost which makes the gasoline treated with it available to every motorist —and it must prove itself to be harmless to the motor and all its parts. [*Continued on next page*]

NOTICE

ETHYL, the Trade Mark of the Ethyl Gasoline Corporation, indicates its brand of Anti-Knock Compound for motor fuel.

Ethyl Brand of Anti-Knock Compound, commonly referred to as "ETHYL" fluid, is sold only by

ETHYL GASOLINE CORPORATION
25 Broadway, New York City
U. S. A.

[*Continued from preceding page*]

So starting with iodine, Mr. Midgley proceeded with the fight to "knock out that 'knock'."

Scientific treatises have devoted thousands of words to the story of Mr. Midgley's discovery of a commercially practicable "anti-knock" ingredient—a discovery considered so important by the scientific world that the American Chemical Society awarded him in 1924 the coveted Nichols medal. But suffice it to say here that after seven years of experimentation—in which over 33,000 chemical compounds were tested in and for their effects on automobile engines—in 1921 he produced for General Motors the ingredient named Ethyl Brand of Anti-Knock Compound, which is the basis of Ethyl Gasoline.

In its economic aspects, Ethyl Gasoline is more than a better fuel for present-day automobiles. It is a fuel which operates without "knocking" in engines of higher compression, thereby making possible smaller motors, delivering more power with less fuel consumption.

It is used by racing car drivers throughout this country in order to obtain the maximum motor revolutions and, in fact, has made possible small displacement, high compression racing cars now in use. Similarly, Ethyl Gasoline is the fuel used to run the latest type of airplanes of the United States Navy.

As an instrument for the further development of motor transportation and the conservation of petroleum resources, Ethyl Gasoline is of great economic value. And the combination of its present and potential advantages has led to its distribution by important oil companies throughout the United States and Canada.

The purpose of this booklet is to give the facts about Ethyl Gasoline in brief and simple language. Naturally, many questions are asked about a new product of general usage; so in addition to those which have already been asked, we have sought to anticipate and answer every question that might be asked regarding Ethyl Gasoline. It is the purpose of the following pages to answer the queries of the engineer and the chemist; of the car manufacturer and the car dealer; of the oil refiner, the gasoline marketer and the man at the pump; of the automobile mechanic and garage man—and, of course, of the owners of automobiles and all other users of motor fuel.

The facts about ETHYL Gasoline

1. What is Ethyl Gasoline? It is gasoline containing enough Ethyl Brand of Anti-Knock Compound to eliminate "knocking."

The oil refining companies which mix Ethyl Brand of Anti-Knock Compound with gasoline to make Ethyl Gasoline agree in all cases with the Ethyl Gasoline Corporation that they will use such portion of the Compound with their gasoline as may be necessary to maintain a given standard of "anti-knock" value, and that the Compound will not be mixed with any gasoline that does not at least conform in sulphur content and distillation characteristics to the specifications for United States Government Motor Fuel.

2. What is Ethyl Brand of Anti-Knock Compound ["ETHYL" fluid]? The "anti-knock" product which is being sold today as Ethyl Brand of Anti-Knock Compound, under the ETHYL trade mark is a liquid consisting of tetraethyl lead, ethylene dibromide, halowax oil (which is known chemically as monochlornapthalene) and red aniline dye. It is the most effective "anti-knock" compound yet discovered.

(The Ethyl Gasoline Corporation does not limit itself to the sale of liquid referred to as an "anti-knock" under its trade mark.)

3. Why tetraethyl lead? It is the ingredient in "ETHYL" fluid which knocks out that "knock." It is made from alcohol and lead. It is twice as heavy as gasoline. It dissolves in gasoline in all proportions. It vaporizes easily and completely. It is colorless.

4. Why ethylene dibromide? This is a colorless bromide compound which prevents the tetraethyl lead from forming lead oxide during combustion and depositing on spark plug electrodes, valve seats and valve stems.

5. Why halowax oil? This is chemically known as monochlornapthalene. It is an extremely efficient lubricant which keeps the exhaust valve stems from becoming dry. This in turn prevents sticking and burning of valves.

In fact, valve trouble would be minimized if halowax oil were added to any gasoline—whether it contains tetraethyl lead or not.

6. Why red aniline dye? This is used in minute quantities for the purpose of identifying Ethyl Gasoline and to prevent its use for any purpose other than as a motor fuel. The dye has nothing whatever to do with the performance of Ethyl Gasoline.

7. How much "ETHYL" fluid is in a gallon of Ethyl Gasoline? About a teaspoonful to a gallon—in no case more than 1 part of tetraethyl lead to 1300 parts of Gasoline.

8. Who invented Ethyl Gasoline? Ethyl Brand of Anti-Knock Compound (or "ETHYL" fluid, for short)—which is the basis of Ethyl Gasoline—was born in the Research Laboratories of General Motors Corporation after years of search for the cause of "knocking" and a commercially practicable means of its elimination.

9. Who makes "ETHYL" fluid? The concentrated fluid is manufactured and sold by the Ethyl Gasoline Corporation, which is the exclusive licensee under the General Motors patents. "ETHYL" fluid is sold only to responsible oil companies which have refinery facilities and these companies are licensed to mix the fluid with gasoline and to sell the resultant product—Ethyl Gasoline—to resellers and distributors of gasoline and to the public.

10. Where is the fluid mixed with gasoline? At the refineries of the oil companies licensed to mix and sell Ethyl Gasoline and then in not less than railroad tank car lots.

11. What is that "knock" that Ethyl Gasoline knocks out? Science has found that what motorists call an "engine knock" or a "spark knock" is actually a *fuel* "knock." It is caused by the too rapid combustion of gasoline in the cylinders. This causes the accumulation of high pressure waves which strike the cylinder walls so violently as to produce an audible metallic sound.

"Knocking" is not particularly noticeable in a car that is new and free from carbon, but no motor remains in this condition very long. As carbon forms—and it forms with every mile—it becomes a non-conductor of heat and increases the temperature in the cylinders beyond the point at which the motor was designed to operate most efficiently. Then too in certain sections of the country a lime deposit forms in the cooling system very rapidly.

These two factors—the carbon and lime deposits—reduce the efficiency and power output of the motor and

you get that "knock." It is both a nuisance and an expense to remove the carbon and lime deposits at the frequent intervals necessary if the motor is to be kept in perfect operating condition.

12. What are the effects of that "knock"? Your motor was designed to deliver a certain number of r.p.m.'s (revolutions per minute). But that is on the basis of a new and clean motor. As carbon forms and the "knock" becomes pronounced, the r.p.m.'s drop and you notice it in the form of a sluggish motor and loss of power on hills and in pick-up.

"Knocking" also increases vibration and consequent wear and tear on the motor.

13. Why does Ethyl Gasoline knock out that "knock"? "ETHYL" fluid controls the combustion rate of gasoline. It keeps it from burning too quickly in the presence of carbon and at high temperature.

14. What may the user expect from Ethyl Gasoline? Remember that "knocking" is not particularly noticeable in a brand-new car with clean cylinders. However, no engine remains long in that condition. Carbon forms with every mile and Ethyl Gasoline may be used in a new car with the assurance that all its new car speed, power and flexibility will be maintained as carbon increases.

With the accumulation of carbon in all types of cars (new and old) the user will find that Ethyl Gasoline

1. Causes the engine to run more smoothly.
2. Delivers more power, particularly on hills and heavy roads.
3. Causes the engine to accelerate more quickly, and makes the car easier to handle in traffic.
4. Reduces gear-shifting.
5. Eliminates "knocking," without retarding the spark.

15. Does Ethyl Gasoline increase power? Yes. Carbon deposits increase the compression of the present-day motor because they decrease the size of the combustion chamber and thereby furnish greater pressure against the piston. Since "ETHYL" fluid neutralizes the heating qualities of carbon and maintains the normal combustion rate of gasoline, this increased pressure becomes increased power. In other words, carbon is transformed from a liability into an asset.

16. Does Ethyl Gasoline give more mileage? By preventing "knocking," permitting full spark advance and reducing gear-shifting, Ethyl Gasoline tends to give increased mileage as a car becomes well-carboned and therefore higher compressioned.

(It is fundamental that the amount of power which can be obtained from gasoline increases as the compression of the motor is raised. Consequently, with engines of the higher compressions which Ethyl Gasoline makes possible, a considerable increase in fuel economy will be noticeable.)

17. Does Ethyl Gasoline lessen vibration? Yes. The "knock" is a producer of vibration and Ethyl Gasoline "knocks out that 'knock.'"

18. Does Ethyl Gasoline remove carbon? No. But some users have thought so because Ethyl Gasoline stops the "knock" that develops with carbon formation.

19. Does Ethyl Gasoline form carbon? No more than any other fuel—and less than some. And it has the advantage of making carbon deposits an agency of service.

20. Is it necessary to clean out the carbon in the combustion chamber when Ethyl Gasoline is used? The more carbon there is in the combustion chamber, the higher the compression. On the average, not enough carbon will form during the lifetime of a car to increase the compression beyond the point where Ethyl Gasoline will be insufficient to keep out the "knock." But remember that the valves must be kept clean.

21. Are the carbon deposits different in appearance? Yes. Ordinary carbon deposits are usually black. In a car which has used Ethyl Gasoline the deposits are sometimes light gray or red dish brown.

22. What is the reason for this difference in color? It is due to the very small amount of lead bromide which is trapped in the ordinary carbon.

23. Have these deposits a harmful effect? No.

24. Does Ethyl Gasoline burn, warp, pit or have any other effect on valves? No more than ordinary gasoline. However, the natural carbon deposit found on the valves of a car using Ethyl Gasoline, being reddish or brownish in color, is sometimes mistaken by repairmen for signs of burning or pitting, or rust. If the valves are ground in the usual way, they will be found to be unharmed.

25. Must valves be cleaned when using Ethyl Gasoline? Certainly. No motor fuel will grind valves. And do not blame Ethyl Gasoline if the valve itself is defective or made of inferior material.

26. Are the carbon deposits on valves harder to remove? Slightly. The carbon deposits in the ETHYL-using motor cling to the metal parts with a little more tenacity than ordinary carbon deposits. When the deposits are brownish in color, they should not be mistaken for iron rust.

27. Is lead bromide found in other places besides the combustion chamber? Yes. Cylinder walls usually show a slight golden color instead of the customary silver. This is simply due to the imbedding in the pores of the cast iron of a very light amount of lead bromide and should not be mistaken for rust or corrosion.

Slight traces of lead bromide also find their way into the lubricating oil and cause it to have a chocolate color when removed from the crank case. This does not affect the lubricating qualities of the oil.

28. Are these deposits harmful in their action? No. Do not be misled by any statement to the contrary. The only difference they make is to change the color of the materials involved.

In fact, the traces of lead bromide in the cylinder walls have a beneficial effect in that they increase the smoothness of the sliding surface by filling up the microscopic voids in the cast iron.

29. Does Ethyl Gasoline overheat motor parts or the cooling system? No. It actually makes a motor run cooler.

30. How can it make a motor run cooler and yet yield more power? There are only so many heat units in a gallon of gasoline—regardless of whether or not it contains "ETHYL" fluid. Some of these heat units are changed into power by the internal combustion engine; the rest are dissipated into the cooling system and the exhaust gas. Consequently, the more heat units you change into power, the fewer you will have to remove in the cooling system and exhaust gases. By converting more of the heat units into power, Ethyl Gasoline cuts down the number that enter the cooling system and exhaust gases, thus making the engine run cooler.

31. If Ethyl Gasoline yields more power, does it not burn with a hotter flame, thereby tending to increase the deterioration of motor parts by overheating? No. It yields more power by producing a cooler flame than ordinary gasoline for the reason mentioned in the last answer.

32. How does Ethyl Gasoline convert more of the heat units into power? Because the "ETHYL" fluid acts as a combustion governor.

[*Continued on next page*]

A motor is designed to operate at a certain maximum temperature. As carbon forms, the temperature in the combustion chamber increases, for carbon is a non-conductor of heat. When ordinary gasoline is used in a carbon-choked car, the fuel explodes too quickly, so that more heat units are sent into the cooling system and the exhaust gases.

33. Is Ethyl Gasoline poisonous? Careful investigation by a group of eminent, disinterested scientists over a period of six months failed to disclose a single case of harmful effect in the use of Ethyl Gasoline in the dilute form of one part of tetraethyl lead to 1300 parts of gasoline, which is the maximum content of lead in the Ethyl Gasoline which is being sold to the public. It was the conclusion of this body that there was no reason why Ethyl Gasoline so diluted should not be sold as a motor fuel, provided it was done in accordance with the rules and regulations issued by the Surgeon General of the United States Public Health Service.

34. What precautions must be used in handling Ethyl Gasoline? The Surgeon General's recommendation is that wherever Ethyl Gasoline is sold there should be a notice stating that it contains tetraethyl lead; that it is to be used as a motor fuel only; that it is not to be used for cleaning, washing or any other purpose; that spilling should be avoided.

This recommendation should be strictly followed, even though during the four years that Ethyl Gasoline has been marketed there has not been an authentic case of anyone having been harmed by its use.

Ethyl Gasoline is intended and sold only as a motor fuel and not for the various other purposes for which ordinary gasoline is used; and in order to advise purchasers against possible misuse, leaflets may be had at filling stations selling Ethyl Gasoline, which contain the following precautions:

"1. Do not use Ethyl Gasoline in lamps or stoves.
"2. Never use it for cleaning tools, machinery, clothing or hands.
"3. Do not carelessly spill it on the floor of the garage.
"4. Wash your hands before food, tobacco or anything else is conveyed to the mouth, after handling motor parts of the exhaust or fuel system of an automobile using Ethyl Gasoline.

"In general, no matter what fuel is being used, the exhaust from automobiles is always dangerous. When internal combustion motors are run in any enclosed space without ventilation, the exhaust fumes may cause headache, dizziness or even death, irrespective of the fuel being used.

"All kinds of gasoline, when breathed as a vapor or when absorbed through the skin in sufficient quantity, will cause serious results. When allowed to remain in contact with the skin, gasoline produces irritations and blisterings."

(In other words, the exhaust fumes from ordinary gasoline contain carbon monoxide gas which is, as everyone knows, a poison. And even ordinary gasoline should not be inhaled in quantity or used for washing purposes.)

35. Is Ethyl Gasoline explosive? No more so than ordinary gasoline and you doubtless are familiar with the reason for the laws which govern the storage of all gasolines and for the "No Smoking" sign in every garage. "ETHYL" fluid does not increase the explosive force of any gasoline.

36. Is there a different odor from the exhaust of a car using Ethyl Gasoline? In rare cases there may be a faint odor which is somewhat different from that of ordinary exhaust gas. However, it is not unpleasant and is in no way harmful.

37. Does the "Ethyl" fluid ever separate or settle out from Ethyl Gasoline? No. The mixture is complete. The "ETHYL" fluid can be removed only by the use of strong chemicals.

38. Does the dye in Ethyl Gasoline ever separate out into the fuel system? No. But the dirt and other foreign matter which get into any gasoline and eventually into the carburetor take on a red hue, with the result that some repairmen think this normal residue has resulted from the use of Ethyl Gasoline.

39. Does Ethyl Gasoline cause clogging of carburetor strainer, jets or any other part of the fuel system? No. There is no suspended matter in Ethyl Gasoline. However, dirt, dust and other substances are as liable to find their way into tanks containing Ethyl Gasoline as in tanks containing ordinary gasoline.

40. Is it necessary to retard the spark when Ethyl Gasoline is used? No. With the "knock" eliminated, retarding the spark on hills and in pick-up is unnecessary.

41. Is Ethyl Gasoline any more affected by change in temperature than ordinary gasoline? No.

42. Need the carburetor be changed when Ethyl Gasoline is used? No adjustment is necessary.

43. What is the effect of Ethyl Gasoline on spark plugs? None, except that experiments indicate that Ethyl Gasoline has a tendency to keep spark plugs cleaner.

44. How does Ethyl Gasoline affect paint, varnish and Duco? It has no more effect than any other gasoline. The quantity of red dye used is infinitesimal and washes off.

45. How does Ethyl Gasoline affect rubber—such as hose lines and tires? It has no more effect than any other gasoline.

46. Will Ethyl Gasoline make the motor start more easily? "ETHYL" fluid has nothing whatever to do with the starting qualities of the gasoline with which it is mixed. It does not affect starting one way or another. Distributors of Ethyl Gasoline, however, are mixing the fluid with high test gasoline for cold weather use, thereby combining the advantages of quick-starting with freedom from "knock."

47. Does Ethyl Gasoline interfere with fuel-air pre-heating devices? No.

48. With the "knock" eliminated, how can you tell when a motor needs attention? Motorists heretofore have relied upon the "knock" as a warning signal that the motor or the cooling system needs checking up. Since a car using Ethyl Gasoline does not "knock," its owner should make sure that he always has plenty of oil and water and should have his car inspected by a reliable mechanic at reasonable intervals.

Ethyl Gasoline is a "knockless" fuel—not a cure-all.

49. Does Ethyl Gasoline harm the motor or any of its parts in any way? No. Previous questions and answers deal with this question specifically.

50. Is Ethyl Gasoline at a premium price an economical fuel? Yes. Besides all that it adds to the pleasure and utility of car ownership, it more than pays for itself in (1) freedom from the expense of carbon removal, (2) elimination of the engine wear and tear that "knocking" causes and (3) more power from each gallon of fuel.

51. Where can Ethyl Gasoline be obtained? Ethyl Gasoline is now obtainable throughout the United States and Canada. It is sold only at pumps which display the "ETHYL" trade mark.

52. Are all red-colored gasolines Ethyl Gasoline? No. Always look for the ETHYL trade mark on the pump.

NOTICE: *Sometimes an engine develops a "knock" which is caused by a loose or defective bearing or some other purely mechanical trouble. This should not be confused with the fuel "knock." No gasoline will eliminate knocks due to mechanical troubles; they need the attention of a repairman.*

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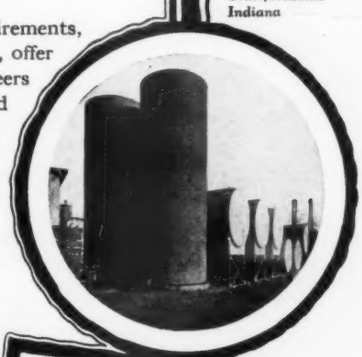

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CALIFORNIA OIL FIELD OPERATIONS FOR FEBRUARY, 1927

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for February amounted to 17,982,711 bbls., an average of 642,240 bbls. per day. This is a decrease of 8,885 bbls. per day under January production.

Total stocks of crude and all products in Pacific Coast territory decreased during the month 1,034,154 bbls. The total stocks at the end of the month were 147,292,853 bbls. Comparative figures as of February 28, 1927, January 31, 1927, and February 28, 1926, are shown in detail on the second page of this report.

Sixty-eight wells were completed during the month with an initial daily production of 29,011 bbls., compared with 103 wells completed during January with an initial production of 46,370 bbls.

PRODUCTION

(Figures of production and stocks are in barrels of 42 gallons.)

District—	Barrels per Month	Daily Average Feb., 1927	Jan., 1927	Feb., 1926
Kern River	384,829	13,744	13,236	12,272
Mount Poso	5,807	207	225	.....
McKittrick	144,100	5,146	5,290	5,392
Midway-Sunset	2,508,363	89,584	90,477	92,296
Elk Hills	958,011	34,215	34,325	32,274
Lost Hills-Belridge	131,711	4,704	4,819	4,347
Coalinga	556,294	19,868	19,896	20,530
Wheeler Ridge	29,155	1,041	1,053	958
Watsonville	1,610	58	56	58
Santa Maria	138,835	4,958	4,641	5,645
Summerland	3,653	130	137	122
Goleta	1,320	47	.....	.....
Ventura Avenue	1,420,663	50,738	53,963	29,407
Ventura-Newhall	169,466	6,052	5,507	5,984
Los Angeles-Salt Lake	51,292	1,832	1,736	1,916
Whittier	50,568	1,806	1,967	2,095
Fullerton (Brea-Olinda)	687,850	24,566	25,213	15,120
Coyote	415,475	14,838	15,326	16,567
Santa Fe Springs	1,242,663	44,381	44,692	49,903
Montebello	464,512	16,590	17,492	17,778
Richfield	592,107	21,147	20,354	13,158
Huntington Beach	2,348,505	83,875	92,254	45,264
Long Beach	2,607,046	93,109	92,564	113,794
Torrance	702,369	25,085	25,783	29,244
Dominguez	519,610	18,558	18,461	22,389
Rosecrans	329,345	11,762	11,970	21,453
Inglewood	1,071,948	38,284	39,560	55,088
Newport	1,347	48	32	102
Seal Beach	444,257	15,866	10,094	.....
Total	17,982,711	642,240	651,125	612,999
January	20,184,872	651,125		
Decrease	2,202,161	8,885		

STOCKS

	Feb. 28 1927	Jan. 31, 1927	Feb. Stock Decreases	Feb. 28, 1926
Heavy crude, heavier than 20 degrees A.P.I., including all grades of fuel	89,107,872	89,390,079	282,207	87,515,041
Refinable crude, 20 degrees A.P.I. and lighter	29,913,353	31,176,493	1,263,140	44,463,968
Gasoline	13,889,204	13,369,861	*519,343	10,670,895
Naphtha distillates	3,903,222	3,983,435	80,213	6,666,518
All other stocks	10,479,202	10,407,139	*72,063	10,333,735
Total all stocks	147,292,853	148,327,007	1,034,154	159,650,157

*Increase.

DEVELOPMENT

District—	New Rigs	Active Drill'g	Comp.	Initial Output	Active Prod'g	Abd. Wells Drlrs.	Prdrs.
Kern River	6	16	5	543	1,261	...	...
Mount Poso	1	4	...	.....	2	3	...
McKittrick	1	3	...	.....	312	...	...
Midway-Sunset	12	32	10	1,262	3,012	2	1
Elk Hills	...	...	...	.....	248	...	...
Lost Hills-Belridge	...	3	...	.....	309	...	...
Coalinga	1	6	...	.....	944	...	4
Wheeler Ridge	...	1	...	.....	28	...	...
Watsonville	...	...	...	.....	6	...	...
Santa Maria	...	4	...	.....	222	...	...
Summerland	...	1	...	.....	131	...	...
Goleta	...	2	1	440	1	...	...
Ventura Avenue	1	33	5	4,766	87	...	...
Ventura-Newhall	1	35	1	75	517	1	...
Los Angeles-Salt Lake	...	...	...	.....	369	...	...
Whittier	...	...	...	.....	182	...	...
Fullerton (Brea Olinda)	1	14	1	290	440	...	...
Coyote	...	2	...	.....	209	...	1
Santa Fe Springs	...	5	...	.....	348	...	4
Montebello	...	6	...	.....	181	1	...
Richfield	2	25	4	700	261	...	1
Huntington Beach	19	62	23	5,865	516	1	...
Long Beach	1	15	4	3,400	716	5	11
Torrance	...	3	2	202	658	...	...
Dominguez	...	3	3	1,052	78	...	...
Rosecrans	...	3	2	507	130	4	...
Inglewood	1	...	1	146	212	...	...
Seal Beach	7	25	6	9,763	13	...	...
Newport	...	...	...	.....	6	...	...
Miscellaneous drilling	12	142	...	.....	.....	16	...
February	66	439	68	29,011	11,339	33	22
January	131	447	103	46,370	11,405	35	28
Decrease	65	8	35	17,359	66	2	6
Average for year 1926	105	417	79	42,247	11,393	28	12
Average for year 1924	103	510	103	42,412	10,903	28	21
Average for year 1923	110	759	82	114,696	8,933	24	
Average for year 1922	115	605	67	43,700	9,410	17	

DOMESTIC EXPORTS OF CRUDE AND REFINED PRODUCTS

Petroleum—	Month of January 1926	1927	Six months ended Dec. 1925	1926
Crude bbls.	1,183,264	1,203,543	6,499,221	7,834,016
Crude $	2,366,394	2,289,553	12,418,422	14,698,201
Total refined petroleum bbls.	9,090,713	9,245,553	47,743,826	54,800,189
Total refined petroleum $	38,787,426	41,650,190	213,632,605	248,635,427
Gasoline, naphtha and other light products bbls.	3,270,446	3,489,532	15,728,575	20,637,928
Gasoline, naphtha and other light products $	20,192,421	20,943,682	101,329,516	127,026,960
Oils—				
Illuminating bbls.	1,840,084	1,591,841	11,201,564	11,690,591
Illuminating $	7,326,647	6,037,125	43,836,228	54,302,723
Gas and fuel bbls.	3,255,957	3,301,679	16,144,861	17,767,234
Gas and fuel $	4,312,560	4,607,763	23,346,646	23,783,575
Lubricating bbls.	709,925	848,349	4,575,138	4,454,839
Lubricating $	6,768,929	7,862,480	44,514,112	41,732,781
Other refined petroleum products bbls.	14,301	14,152	93,588	249,697
Other refined petroleum products $	186,869	199,140	804,103	1,789,382
Paraffin wax bbls.	29,061,413	29,228,106	178,078,075	169,981,112
Paraffin wax $	1,648,657	1,618,914	9,979,562	9,650,879

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CENTRAL WEST FIELDS

(Continued from Page 62)

Island, the Ohio Oil Co. is drilling a test on the Fred Block farm, Section 4.

In Washington Township, Sandusky County, the Ohio Oil Co.'s No. 9, on the J. H. Myers farm, Section 30, pumped an initial of 6 bbls. Same company abandoned No. 7 on the Anna Diels farm, Section 32, same township; same company abandoned No. 11 on the Mrs. D. Hensel farm, Section 18, Sandusky Township, and is drilling a test on the F. Dischinger farm, Section 25, Woodville Township. In Jackson Township, same county, Milton J. Beaty is drilling No. 14 on the W. A. Heyman farm, Section 3.

In Hancock County, Marion Township, George Snyder's test, in the southwest corner of his own farm in the NW NW, Section 30, proved a duster. Top of sand was at 1,228 feet and drilled 65 feet in the sand. The well is on a 6-acre lot. In Biglick Township, R. W. Kirk and others are drilling a test on the H. Roberts farm, Section 35.

In Lake Township, Wood County, Charles F. Zeising and others are starting a second test on the Otto Brim farm, Section 27.

Indiana

Only two completions were reported for the week from the Indiana Field and they are both in the old Trenton Rock Area in the eastern part of the State in Adams County. The Richberne Oil & Gas Co.'s No. 4, on the William Smitley 80 acres, Section 6, Jefferson Township, Adams County, pumped 20 bbls. initial production. Same parties made several new locations on the John Corey 80 acres, same section, and expect to drill quite a number of wells during the summer, work to start as soon as the roads are in shape to transport materials. This is what is known as the new extension to the old Berne Field. The G. B. W. Oil & Gas Co. brought in No. 1 on the Fred Kauffman farm, mapped as the George Zehr farm, Section 6, same township, with an initial of 30 bbls., but showing a steady production of 15 bbls. per day under pump after the head was pumped off. No. 2, same lease, is drilling. Maybeer and others of Toledo, Ohio, are drilling No. 1 on the W. Greenfield 80 acres, mapped as the Hockinberry farm, Section 6. A number of locations have been made by Lacknett and others of Pittsburgh, Pa., in the Berne extension and a large drilling campaign will shortly be taken place. Activity is already commencing in the field both in Blue Creek and Jefferson Townships.

In Blue Creek Township, Adams County, Paul Schulte and others are drilling No. 1 on the John Gross farm, Section 29, and not far south from the three gas wells recently drilled and to the north of the big production found on the old Pruden farm. The Rechard Petroleum Co., formerly reported as Anderson and others, is on top of the sand at second well on the Stengle & Craig 90 acres, Section 36, Monroe Township.

Butler, Pa., parties have purchased the acreage and well belonging to Fink & Smith, in Section 17, Wabash Township, Adams County, and expect to do some active drilling as soon as the weather will permit.

Illinois

The deepest well ever drilled in any part of Illinois has been given up as a failure. This was the Ohio Oil Co.'s No. 23 on the J. R. Middaugh farm, Section 32, Bridgeport Township, Lawrence County, which struck a heavy water sand at a depth of 5,185 feet and has been abandoned. This well has been drilling for months in hopes of discovering a new deep pay sand. In the early days of the development of this farm, some wonderful producers were opened up and in view of the fact that several pay sands are found from the shallow pay down to the deepest pay in the county, which is the McCloskey sand, is was thought possible that a still deeper pay might exist, but the drill failed to find it.

In Bond Township, Lawrence County, the Ohio Oil Co.'s No. 8 well, 600 feet from the north line and 500 feet from the east line of the Charles Gillin farm, SE, Section 30, pumped 3 bbls. initially from the sand at 885 feet.

Only one completion is reported from the Allendale Field of Wabash Township, Wabash County, which proved a duster at a depth of 1,575 feet. It is Wirebach and others' No. 7, being 200 feet from the south line and 600 feet from the east line of the Kate Keyser farm, SW, Section 6.

Central Ohio

An operator from the Central Ohio Field reports that during Saturday and Sunday enough water fell to fill one of the oceans, as it poured down almost continuously during the greater part of two days. There were 11 completions reported for the past week, 3 of which were oil wells with a combined initial production of 205 bbls., 2 were dry holes and 7 were gas wells. Only three locations were staked out for wells and three wells started drilling.

In Hardy Township, Holmes County, Burton, Morgan and others' second well, 325 feet from the north line and 950 feet from the west line of the George Schuler 147 acres, Lot 4, is reported to have made 85 bbls. the first 24 hours from the deep Clinton sand. In Monroe Township, same county, the Empire Gas & Fuel Co.'s second test, in the southeast corner of the Oscar Steele 115 acres, Lot 6, is reported at 75 bbls initial from the same formation. In Killbuck Township, same county, the Kemrow Oil Co.'s test, in the northwest corner of the L. B. Mohler 60 acres, Lot 5, is reported at 55 bbls. initially from the Clinton sand. In the same township, the East Ohio Gas Co. has an excellent gas producer at a test in the northeast corner of the F. H. and Laura E. Garver 20 acres, Lot 13, also a gas well at No. 1 in the southwest corner of the Frank Galley 110 acres, Lot 21.

Hendricks and others drilled a dry hole in a test on the Ida B. Davies 2 acres, Lot 36, Carthage Township, Athens County.

In the Cleveland Field, in Dover Township, Cuyahoga County, Arthur & Simpson have an average gas producer at a test on the Kroehler and others 20 acres, Lot 7, and an excellent gasser at a test 800 feet from the north line and 50 feet from the west line of the A. U. Gauge 10 acres, Lot 7, and are drilling No. 1 on the H. Martin 29 acres, Lot 15; No. 2 on the J. Gregory 49 acres, same lot, and No. 1 on the C. L. Harrison 10 acres, same lot, are drilling. The Logan Gas Co. got a light pumper at a test 800 feet from the south line and 165 feet from the west line of the Ellen Smith 20 acres, Lot 27. Wiser Oil Co. is drilling a second test on the G. W. Jenkins 50 acres, Lot 26.

F. A. Brendall and others are starting a test in the northwest corner of the Jacob and Emma Boettler 152 acres, in Franklin Township, Summitt County. This is purely a wildcat venture.

In Jefferson Township, Knox County, the Ohio Fuel Gas Co.'s second test in the northeast corner of the Thomas McMahon 20 acres, Section 11, is a very fair gas well, while the Upham Gas Co. has a light gas well at a test in the northeast corner of the George W. Sapp 80 acres, Section 11. Davidson & Bell Brothers are drilling No. 7 in the northwest corner of the A. Larson 80 acres, Section 18, Clay Township, same county.

KENTUCKY-TENNESSEE

(Continued from Page 62)

about 100 feet below the Pencil Cave. The drill penetrated the sand but a few feet when the hole filled up and flowed over the mast of the drilling machine. This well is owned by the Cumberland Valley Oil Co. of Hopkinsville, Ky., which purchased a block off the western part of the Langford farm from John H. McClurkin, the discoverer of the field. The interesting feature of this well is that it is located 1 mile west of the discovery well, making a large acreage look inviting for further test work. John H. McClurkin is the drilling contractor on the new well and the driller is Pete

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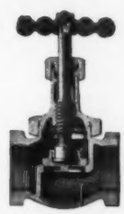

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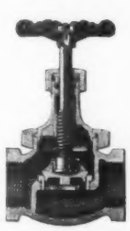

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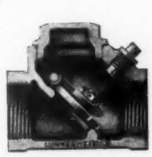

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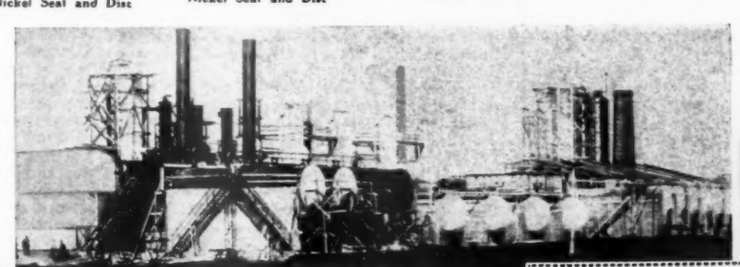

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Cloyd of Burkesville, Ky. The well is reported around 490 feet in depth. Several other wells under way in Clay County should soon reach the proper depths to find pay sands.

Mississippi

F. N. Henderson, who is in close touch with development work in the Amory area of Mississippi, writes from Aberdeen as follows: "It was glad news to those interested at Aberdeen, Miss., to learn that Brummitt & Dermentround had secured a contract with the Natural Gas & Fuel Corp. for the drilling of the first well on the Frank Rye land in the NW of NW Section 22-15-17. Work on the derrick has been started and the drilling outfit has been shipped from El Dorado, Ark. The crews and drilling contractors, Foster & McWilliams, are at Aberdeen and expect to use a day and night crew. A number of the major oil companies have secured protection acreage around this well, including the Standard Oil, Gulf Oil, The Texas Company, Marland Oil, Ohio Oil, Magnolia Petroleum, Skelly Oil, Pure Oil, Lion Oil & Refining and Frazier Oil.

"The second test of the Amory Petroleum Co. on the Hall land in Section 8-13-17 is close around 1,500 feet, while the third test on the Nancy Carter Dill land, Section 12-13-18 is down close around 1,200 feet, and it is understood the fourth location of this company has been made on the West farm, about 2 miles southwest in Section 14-13-18. The Quincy Oil Co. is drilling below shale on the Durrett land in Section 29-13-17. The Buffalo Oil Co. on the Crook lease in Section 4-13-18 is waiting on a rock bit to come from El Dorado, as the formation at 595 feet is too hard. L. B. Mawk has completed his derrick in Section 22-15-17, and another block of leases adjoining his block has practically been closed by an Arkansas operator, who expects to announce his location within a short time, which will make eight tests for Monroe County, with increased interest in adjoining counties. Leo Yount is expected to decide on location for his test within a few days, and Ewing & Browning are perfecting final arrangements to begin on a block in Alabama on the Monroe County line. The Marland company has closed for a drilling block near Corinth."

SODA PROCESS FOR PETROLEUM RECOVERY

(Continued from Page 76)

inch in diameter. In a cubic foot of such sand, the surface to be covered is therefore 22,000 cm^2=25 square feet. To cover a cubic foot of sand 1 molecule (4×10^{-8}cm) deep with any substance will therefore require 0.26³ or 0.65 gram of material, or about 1,860 pounds per acre of sand 30 feet thick. This is the least that can be effective of any material but experiments indicate that it would be a sufficient amount (if it could be placed) to free the sand from oil.

However, in an advancing flood there is very little mixing and it is the front contact whose strength must be kept above the effective minimum which in the case of soda is about 1/500 of saturation. Laboratory titration tests showed that soda solution advancing through sand lost about .06 normal per foot of drive, on its front. This means that a saturated solution of soda would drive about 300 feet before even the front of the solution became exhausted of its soda, even in the complete absence of mixing or diffusion backward. The theoretical minimum of 1,860 lbs. per acre is of course absurd in practice because it could not be spread over the sand grains without using a very much greater amount. On the other hand if soda solution is put down at the rate of 600 bbls. per acre (=15 tons of soda ash) there is every reason to believe it will drive at least 600 feet without the front becoming exhausted. In very loose sands, the soda solution would spread out under the oil and drive upward and still less soda would be required and used up on account of the larger contact area.

Costs of Recovery

The ultimate choice of a recovery process depends on costs, production and prices rather than upon efficiency alone. It may even be a better financial policy to recover only part of the oil at present, holding the remainder in reserve for higher prices. In typical tracts of the Bradford district the sand is 30 feet thick and contained originally about 40,000 bbls. per acre of which perhaps 30,000 remain in the ground. Water flooding (at 3 wells per acre) costs about $7,000 per acre and brings out about as many barrels of oil. This oil at $3 to $3.50 per bbl. leaves a safe margin spread out over about three years of operation. If the oil were of lower grade or the wells more expensive to drill, case or operate, the margin would be slight at present prices. Compressed air apparently is about on a par with water flooding as regards cost and efficiency but leaves the residual oil (perhaps 60 per cent) distributed over the sand grains instead of assembled in pockets.

The soda process adds about 5 per cent to the cost of the water flooding process and in the laboratory recovers all the oil. In the field, however, the sands are of uneven texture and thickness and the flow lines are far from parallel as in laboratory tests. The steepest pressure gradient is on the direct line between two wells, on the marginal path in the checkerboard pattern of well spacing, it is but half as great. A shorter spacing (100 feet) between wells in a row and a longer spacing (235 feet) between rows is used by some operators to straighten the flow lines. When the tighter sand lies above the looser, the effect of variation in texture can be overcome to some extent by varying the depth of drilling. Cases are known where the flow turned at right angles from that anticipated. The obvious procedure is to determine natural lines of drainage (from well records), keep the oil mobilized and moving with soda solution under a moderate head, then drain it off at the favored outlet wells. By such a method the recovery of 90 per cent of the oil is within reason.

The aim of this paper has been to present a general survey of the soda process in its broader aspect. In a second paper the chemical and physical principles underlying the process are to be reviewed. The third paper of this series is to be an outline of the development and testing of the process, including field tests to date and possibly a resume of the patent situation.

MEXICAN FIELDS

(Continued from Page 60)

131 and 134 have each cemented 10-inch, in gray lime, at 1,396 and 1,335 feet respectively. In this respect, No. 124 is a derrick; and No. 125 is drilling in blue shale at 120 feet. Its No. 137 is in gray lime at 2,200 feet; its No. 154 is in gray shale at 2,295 feet; its No. 153 is in gray shale at 741 feet. In East D'cha. Mexican Petroleum Co. has the following: No. 116, in Tamasopa, at 2,040 feet; No. 124 in gray shale at 750 feet; Nos. 125 to 137 cemented 10-inch at 1,208 and 1,195 feet, respectively. In its No. 60 Chijol, it cemented 10-inch at 1,150 feet in gray lime; it has done the same with its Nos. 69 and 71, same, at 1,265 and 1,240 feet, respectively. Its Nos. 15-A Pez and 20 each cemented 10-inch at 1,365 and 1,358 feet, in gray lime. Its No. 24-A is running 10-inch in gray lime at 1,375 feet. Its No. 28 Pedro cemented 10-inch in gray lime at 1,290 feet, its No. 33 is in gray lime at 2,150 feet, with a show of salt water at 1,710 feet; its No. 34 is drilling in gray and white lime at 1,870 feet.

Mexican Petroleum Co.'s No. H-16 Caracol is in brown lime at 2,568 feet; its No. H-18 is in a similar formation at 2,562 feet; its No. V-58 is in white lime at 2,610 feet. Its No. 2 Camino is in gray shale at 320 feet; its No. 4 is rigging; its No. 123 Conteca cemented 10-inch in gray lime at 1,240 feet; its No. 138 is in gray lime at 1,725 feet; and, its No. 7 Margaritas is in gray shale at 275 feet.

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fields, offers the following: No. 91 Tierra Blanca is in brown lime at 1,941 feet; No. 93, same, cemented 8-inch in gray and brown lime at 1,989 feet. Its No. 96 is shut down for orders at 2,166 feet in shells. Its No. 20 Chapopote Nunez is in shale at 526 feet; and, its No. 17-A, same, is rigging. Its No. 7, Lot 163 Chinampa, is running 10-inch in shale and rock at 1,620 feet. Mexican Eagle Oil Co.'s No. 10 San Diego is in gray shale at 1,106 feet.

Northern Miscellany

The Cosmos Oil Co. well that was reported last week as having been finished for 1,000 bbls. remains on the list. The 1,000 bbls. did not hold to the gauge so the well is being deepened. It is now 1,330 feet, S.F., and is showing say about 200 bbls. by heads. (The well is No. 133, Lot G Corcovado.) American International Fuel Co.'s No. 49 Los Esteros is a deep test in lime and chert and 3,239 feet. La Corona Petroleum Co.'s No. 22 Topila is in lime at 2,611 feet. Cia. Pet. Franco Espanola (Marland) No. 82 Limon is in gray shale at 900 feet; its No. 87 is in lime at 2,415 feet; its No. 93 is running 8-inch in gray lime at 1,405 feet, its No. 94 is in lime shells at 1,510 feet. Three locations are rigging. Intermex Oil Co.'s No. 13, Lot 29 Altamira, is in gray shale at 650 feet. Kern Mex Oil Fields' No. 3 Clarin is in shale at 175 feet. The Texas Company's No. 1 Lomo del Pozo is in the Tamasopa at 3,186 feet, with a caving hole; and its No. 2 Zavala is running 10-inch in gray lime at 2,258 feet. Rich Mex Oil Co.'s No. 14-B, Lot 26 Altamira, is in gray lime at 1,850 feet. National Oil Co.'s No. 9, Lot 83 Quebarche, is in gray shale at 2,920 feet.

CALIFORNIA FIELDS

(Continued from Page 58)

clean 24.3 gravity oil daily from 4,345 feet, was one of these. This new well, located along the ocean front within throwing distance of the surf, is flowing through a three-quarter inch bean under a pressure of 630 pounds. The company is running three additional strings of tools on the Pacific Electric property and, judging by their respective depths, this trio should all be tanking oil within 30 days.

The Superior's No. 2 Nixon was even a larger well than the Standard's No. 4 Pacific Electric. It came in doing 1,350 bbls. daily from 4,385 feet, the hole being finished with an 8¼-inch oil string carrying 650 feet of perforated. The oil, which tests 23.6 degrees and shows a cut of slightly less than 2 per cent, is flowing through a ⅝-inch bean under a pressure of 600 pounds. The California Petroleum's No. 1 Jones, a new well, originally drilled to 4,281 feet but later plugged back to an even 4,000 feet because of bottom water, is flowing 625 bbls. of 24.1 gravity oil daily. The output during the first 10 hours showed a cut of approximately 36 per cent but this has since cleaned up to less than 2 per cent. In contrast to these three large wells, the California Eastern's No. 1 Bogan was somewhat of a disappointment as it only resulted in a 120-bbl. pumper from 4,344 feet. This hole was finished with a 6¼-inch oil string carrying 140 feet of perforated and the small production reported was somewhat of a surprise as on a preliminary test it gave indications of resulting in much larger production.

Plugged Back

Smithson & White's No. 1 Huntington Schroeter was put on the beam at 3,840 feet after being plugged back from 4,595 feet and, although it is pumping 325 bbls. daily, the output is cutting approximately 15 per cent. No. 2 Huntington of the Coastal Oil Co. was a smaller well than Smithson & White's completion but it is on the other hand producing a much better quality of oil, as the cut in this case is only running 3 per cent. The Coastal's No. 2 was drilled to 3,796 feet, from which depth it is pumping 224 bbls. of 21.2 gravity oil daily. The Guaranty Oil Syndicate's No. 1 Huntington, drilled to 4,381 feet and finished with a 6¼-inch liner carrying 580 feet of perforated, started off pumping for a few hours at the rate of 400 bbls. a day but the total production during the initial 24 hours was 260 bbls., the oil testing 21.2 degrees and showing a cut of 10 per cent. The Ahlburg Gasoline Corp. successfully finished its No. 8 Huntington after plugging back from 4,009 feet to 3,956 feet but the result was only a small well pumping 125 bbls. of 21.3 gravity oil daily. The Barry Oil Co. has just finished its No. 5 Huntington, a new well, at 4,423 feet and, while no flow figures are yet available due to the fact that it has not been on production for the full 24 hours, the output during the first eight hours was at the rate of 800 bbls. daily.

The Mar Vista's No. 11 Huntington Davis, which made a preliminary flow several days ago, is now on steady production pumping 380 bbls. of 23.1 gravity oil daily from 4,409 feet. There were two recompletions listed in the older section of the Huntington Beach Field during the past week, one by the Holly Oil Co. and the other by the Huntington Central Oil Co. The latter's workover was No. 2 Hesse, which is pumping 90 bbls. of 21.2 gravity oil daily after being cleaned out to bottom, 5,002 feet. The Holly Oil Co.'s No. 2 Huntington upon being cleaned out to bottom, 4,805 feet, was returned to production pumping 140 bbls. of 21.1 gravity oil daily. The Globe Lease & Royalty Co. has a rig going up for its second well on a 20-acre lease adjoining the Standard's Bolsa Chica lease and spud will probably be made within two weeks. The Globe Lease & Royalty Co.'s initial completion on this property is doing 175 bbls. of 19.5 gravity oil daily and, while early production reports indicated that the output was cutting in excess of 5 per cent, this has now cleaned up to less than 2 per cent. The Standard has reduced its drilling operations in the older section of this field to a minimum and, although the company has been running five or six strings of tools on its lease "B" which lies just north of the town lot section, the development chart now covers only two active drillers.

Long Beach

The California Petroleum finished an exceptionally favorable well in the Long Beach Field a few days ago and, judging by the high gas pressure, the initial production will undoubtedly be maintained for some time. The company's new well was No. 8 Harlow Kent, which actually gauged 1,775 bbls. of clean 29.6 gravity oil daily from 5,255 feet. This new well offsets the Shell's No. 7 Cresson, a drilling project which has just passed the 4,100-foot level and barring the development of mechanical trouble the Shell should at least duplicate this figure. The A. T. Jergins Syndicate and the Delaney Petroleum Corp. should each list a new deep well in this field within 30 days and in each case favorable production is anticipated. The Union's No. 4 Trust in the Rosecrans Field has resolved itself into a real deep test and, while the outlook at 6,473 feet cannot be said to be encouraging, the company may yet secure production as it will be recalled that E. J. Miley is producing from below 7,000 feet. The Union has several drilling wells on the Howard Park property but neither this company nor the Barnsdall is pushing ahead development work in the face of increasing state production and the probability of lower prices. These two companies are sitting tight in this field and will probably continue until conditions improve. Work in the Dominguez Field is likewise being destricted by the principal operators in that area and no change in this policy is anticipated. The Santa Fe Springs and Torrance Fields are not showing any increased development due to the fact that most of the productive acreage is fairly well drilled up. The Chanslor-Canfield Midway Oil Co. has been consistently developing its holdings in the latter field, although this work is going along rather slowly. The company is running three strings of tools at the present time, two on the Del Amo lease and one on the Torrance.

Richfield

Development work in the town lot areas at Huntington and Seal Beach has had a tendency more or less to force the older fields into the background and, while those districts under active intensive development would naturally be expected to be the center of interest, one must not get the impression that the older fields are things of the past for they all have some undeveloped acreage held in reserve and every once in a while some operator reports the completion of a large well in some comparatively inactive district not being followed as closely as conditions warrant. The Richfield and Fullerton Fields are two typical examples and while new wells in these areas are of course less frequent than completions at Huntington or Seal Beach, large wells are nevertheless being finished from time to time. During the past week the Associated surprised the boys by recompleting No. 2-A Thompson in the Richfield (Yorba Linda) district as a 740-bbl. flowing well, the oil being clean and testing 21.2 degrees. This well is an oldtimer, having been originally finished back in July, 1922, as a 250-bbl. pumper from 3,375 feet. Subsequent decline and the development of adjacent deep production resulted in its being deepened to 4,362 feet with the result just mentioned. The Standard's No. 1 Moll, also in this field, was somewhat of a disappointment as it only registered an initial production of 75 bbls. daily from 3,150 feet. The Continental Oil Co.'s No. 2 Pyne, which went on production last week flowing 1,000 bbls. daily after being deepened to 4,400 feet, settled slightly during the past week but will probably continue producing at its present rate for some time. The company has just finished No. 4 Pyne at 4,386 feet and it will be swabbed in tomorrow. No. 3 Pyne, another deepening project, and No. 5 Pyne, a new well, are scheduled for completion along about May 1. W. O. Todd and Clarence Berry have just spudded in their first well in the Richfield district on the Thurston property about 800 feet east of the Standard's Anaheim Union lease, on which the property is building a rig for its second well. The Chanslor-Canfield Midway Oil Co. spudded in two new wells, Nos. 7 and 8, on its Richfield lease and is now running four strings of tools in this area. The General Petroleum also spudded in a new hole in the Richfield district and has two drilling projects on the Hugo lease and a like number on the Mullen.

Increased Output Likely

The Union Oil Co.'s operations in the Richfiel ddistrict consist of several drillers on the Yorba Linda, Stern, Morse and Thompson & Goodwin leases. In view of the present amount of drilling being done in this field resulting primarily from extension work and deeper drilling initiated by the Continental Oil Co., several months ago, Richfield will undoubtedly register increased production during the rest of this year. The gain to be recorded, however, will not be unduly large. The California Petroleum Corp., in accordance with its announced policy of acquiring producing properties where the terms are right, has just closed a deal whereby it secures the properties and equipment of the Chiksan Oil Co. in the Richfield district for a consideration involving approximately $500,000. Included in the transaction are the Chiksan's 37-acre Bradford lease and the 7-acre Hartwell tract. Both properties are located in the southern part of the field adjoining the Standard's holdings on the west and the Chanslor-Canfield Midway properties on the east. There are five producing wells on the Bradford lease, the present settled production being approximately 750 bbls. daily.

Ventura

The Shell wound up the past week with one new completion to its credit in the Ventura Avenue Field and will probably finish another producer within a short time as No. 15 Taylor is now being prepared for production at 6,210 feet. Nos. 16 and 18 on the same lease also look rather promising and give evidence of resulting in early production. The Shell's new well was No. 12 Gosnell, which was brought in doing 1,920 bbls. of 29.6 gravity oil daily accompanied by approximately 3,000,000 feet of wet gas. This hole, which is located in the southern part of the field, was drilled to 6,189 feet and finished with a 4¾-inch oil string and 4,780 feet of 2½-inch tubing. The Bolsa Chica Oil Co. has just concluded drilling its No. 2 Hartman in the northern part of the field at 6,133 feet and the company will run in the oil string within a day or two. No. 3, on this same property is rotating ahead at 3,407 feet and will probably be finished along about the middle of May.

The Associated's No. 4 Hartman in the northern part of the field is drilling ahead in the richly-saturated oil sand at 6,400 feet and, while this well would undoubtedly result in commercial production at the present time if given a test, the company will continue drilling to take advantage of the maximum penetration afforded. The last 200 feet of hole looked exceptionally promising and, while no unusual amount of gas was encountered, the well appears to have plenty of kick. The Associated's next completion in this field will undoubtedly be No. 37 Lloyd now down 6,157 feet, although No. 19 Lloyd might precede it into production as it, too, will be an early completion. The General Petroleum will probably not be in a position to increase its list of producers for another three or four weeks, although No. 2 Barnard, which is being cleaned out at 6,068 feet, may be returned to production shortly. The past week was an exceptionally active one as far as new work was concerned as operators actually spudded in seven new wells. The Petroleum Securities started drilling operations on both Nos. 2 and 3 on its Orton lease in the southern part of the field and started rig construction for two more holes on the Willette lease adjoining. The Shell spudded in Nos. 19, 20 and 21 on the Taylor lease, while the Associated started making hole in No. 1 Dabney Lloyd within the past two days. McBride & Rodgers have just spudded in their first hole, while the M. K. & T. Oil Co. is hauling in material for No. 1 Foster and this hole will undoubtedly be started downward within two or three weeks.

Midway-Sunset

The Honolulu Consolidated Oil Co. listed three new completions in the Midway-Sunset Field, all in Section 8-32-24. The largest was No. 7, which is pumping 215 bbls. daily from 2,913 feet. No. 5 was a 125-bbl. pumper from 2,931 feet, while No. 87, the shallowest and smallest, is pumping 65 bbls. daily from 2,550 feet, the hole having been plugged back from 2,917 feet. Hugh B. Evans' No. 14, a recent completion in Section 35-32-23, doing 230 bbls. per day from 2,103 feet, has shown a substantial increase in production and this new well is now pumping 330 bbls. daily. The Lewis Petroleum Co. recompleted two shallow producers in Section 6-11-23, the largest of which was No. 9, returned to production pumping 265 bbls. daily from 2,088 feet. No. 8 was put on the beam after being cleaned out to bottom, 2,175 feet, and is pumping 70 bbls. of clean 19.2 gravity oil.

Three new wells were finished along the Kern River front, the most satisfactory of which was the Chanslor-Canfield Midway Oil Co.'s No. 2 in Section 23-28-27. This well was put on the beam at 2,240 feet and is pumping 270 bbls. of 15.1 gravity oil daily. The General Petroleum's No. 21 Young in Section 14-28-27, was drilled to 2,174 feet and finished with a 6⅝-inch liner. It started off pumping 120 bbls. of 14.6 gravity oil daily. George F. Getty finished another one of his frequent completions in this district by bringing in No. 11 Tegeler pumping 118 bbls. of 14.8 gravity oil daily from 2,352 feet. In addition to this completion, No. 1 Lehnhardt was spudded in and the water string landed in No. 20 Tegeler and No. 13-A Lehnhardt.

Mount Poso

The Shell ran into a fishing job in No. 1 Glide, Section 1-27-27, approximately 3 miles west of its discovery well in the Mount Poso Field, and as a result the production test scheduled to be made of the showings found at 2,813 feet will be held up until the crew has recovered the fish lost at 1,850 feet. Work in this field is going along very slowly due to the lack

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of adequate pipe line facilities and the undesirability of this type of oil at present, and in view of the impending increase in state production it is hardly likely more than a limited amount of work will be undertaken in this field during the balance of 1927. The Union, Shell, Barnsdall and a few others are developing their acreage slowly and, while field reports show new wells completed in this field from time to time, they are shut in immediately upon conclusion of the original production test. The Union is contemplating the abandonment of No. 1 Miller, an outpost in Section 35-27-27, due to the unfavorable outlook at 4,360 feet.

Southern California Wildcats

The principal development from a wildcatting standpoint in southern California was the leasing activities of several companies in two separate and distinct districts. The Superior, Wilshire, Marland, Shell and Standard have been actively tying up acreage and community leases in and around the town of Rivera and it is reliably reported that the Marland will undertake to wildcat in this section in the very near future as this company has lined up some choice acreage. Several dry holes have already been charged up against this district but the area now being leased is virgin territory in as much as none of the dusters drilled heretofore have been close enough to condemn it. This vicinity looks promising and warrants further drilling. The other potential oil land being leased lies west of the Santa Monica Hills, but respecting the desires of those negotiating leases at present the names of the companies leasing will not be mentioned for another week or ten days.

Operators have just about concluded that No. 1 Bandini of the Petroleum Securities will be another one of the numerous dusters already chalked up against the Bandini district as a result of many efforts made to find an uplift of the Santa Fe Springs Field, as this wildcat is getting quite deep. The Union lost several stands of drill pipe in No. 1 Moser west of the northern part of the Rosecrans Field while rotating ahead at 5,690 feet and hence progress is being delayed pending recovery. The Petroleum Securities spudded in No. 1 Weston in the El Segundo district early in the week and this test will be watched with interest about the close of April, or sooner if the projected depth is reached. The attempt of the Petroleum Securities to find a new field along the north edge of the Palos Verdes Hills has already resulted in the drilling of two dry holes, No. 1 Joughan and No. 1 Palos Verdes, located about 2 miles eastward, having been abandoned early last year. The Reliance Home Investment interests are erecting a rig approximately 500 feet east of McFadden & Behring's No. 1 McDowell, which blew out several years ago from around the 1,200-foot level, and while no definite announcement has been made as to the intention of the company it is believed this test is being drilled to determine the possibility of developing commercial gas production. Several shallow gas blowouts have been charged up against this district, as well as three or four deep dry holes during the past several years.

Northern California Wildcats

The Milham Exploration Co. is landing a string of 11-inch in its Buttonwillow wildcat at 3,988 feet and, while some gas has been encountered from time to time, no other indications of the presence of oil have so far been reported. The additional footage made during the week by the Pacific Eastern in its Bakersfield wildcat has not changed the outlook but, since the well has not reached the projected depth at which the pay was anticipated, those following this test are not the least bit discouraged. The Standard has staked location for a wildcat to be drilled in the vicinity of Belridge and it will be known in the future as No. 1 Bacon, being situated in the Bacon Hills. The Marland is landing pipe in its Jacalitos Dome wildcat in Fresno County around the 3,720-foot level, due, it is reported, to a fairly promising showing of gas at approximately this depth.

There were no developments of interest in any of the several Kettleman Hills wildcats, nor did any of the various tests under way in Ventura County show any change for the better. The Walklin Petroleum had the misfortune to twist off some drill pipe in its San Luis Obispo County wildcat and as a result drilling is being temporarily held up at 2,472 feet pending recovery. The Shell's No. 1 Murphy near Petaluma is getting quite deep and at 4,714 feet the possibility of developing production does not appear very favorable. On the other hand the outlook cannot be described as being very unfavorable, the company having an even break as far as the formation is concerned. In the Half Moon Bay district the Shell's No. 1 Cowell, which is destined to be a deep test, has just passed the 1,820-foot level.

CANADIAN FIELDS

(Continued from Page 57)

valued at $2,752,545 to 10,418,697,000 cubic feet in 1926, valued at $3,041,100.

Border Field

In the Border Field, southern Alberta, the Urban Oils' test, Section 4-1-15w4, on the Quarantine Reserve near Coutts, was shot at 3,423 feet with 80 quarts of nitroglycerin. The well bridged 1,000 feet off bottom, and the drillers at last reports were drilling up the bridge. Before the shot, the drill at 3,410 feet had got through 36 feet of what looked like a tight oil sand, with showings of heavy crude bailing about 1½ bbls. a day. After working a little distance in a soft brown shale it is claimed the drill entered another hard oil sand. Following the shot some gas came up through the water in the hole, but there was no increase in the water leakage. As soon as the bridge is cleared and the well bailed it will be given a pumping test.

In the area east of Coutts, Imperial Oil, Ltd., Erickson Coulee No. 1, LSD 13, Section 8-1-12w4, is at 3,516 feet and drilling in the limestone. In the Bow Island Field, Imperial-Burdett's No. 1, Section 8-11-11w4, is in a second limestone and drilling at 3,846 feet. In the Ribstone-Blackfoot area, east central Alberta, Imperial-Ribstone's No. 1, Section 5-45-1w4, is at 2,660 feet and still drilling in the limestone. In the southern foothills, the Imperial-Highwood's No. 1, LSD 3, Section 36-18-3w5, is drilling at 2,030 feet. In the Jumping Pond district west of Calgary, Imperial-Bow River's No. 1, LSD 15, Section 12-25-5w5, is at 5,080 feet and working on 6-inch casing.

Turner Valley

In the Turner Valley Field, Imperial-Millarville's No. 1, SW, Section 26-20-3w5, in the north end of the valley, is working on camp. Royalite Oil Co.'s No. 7, LSD 3, Section 13-20-3w5, is at 1,225 feet and drilling.

McLeod Oil Co.'s No. 2, LSD 16, Section 1-20-3w5, is drilling at 4,030 feet in a hard sandy limestone with about 1,000,000 feet more gas, bringing the wet gas production up to about 4,500,000 feet a day. McLeod's No. 3, same section, is drilling at 400 feet and running double tour. Illinois-Alberta Oil & Refining Co.'s LSD 14, Section 12-20-3w5, at last reports was still frozen as a result of increasing the back pressure, in the effort to increase the production.

New McDougall-Segur's No. 1, LSD 14, Section 12-20-3w5, running 12 to 13 hours a day, is making 70 to 95 bbls. from the Dakota sand at 2,595 feet.

Other Operations

Dalhousie Oil Co.'s No. 1, LSD 4, Section 18-20-2w5, is diamond drilling through the cement and working within 50 feet of the bottom of the original 3,600-foot hole. Dalhousie's No. 5, LSD 16, Section 30-19-2w5, is at 3,560 feet and drilling. Dalhousie's No. 6, LSD 10, Section 13-20-3w5, is at 2,120 feet and drilling.

British Dominion Oil Corp., LSD 4, Section 5-20-2w5, is drilling at 4,900 feet and carrying the 8¼-inch casing down behind the tools. Home Oil Co. No. 1 LSD 10, Section 20-19-2w5, is at 3,605 feet and drilling in a very hard formation. The test was expected to get the

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Madison limestone at a high point, but apparently has either encountered an overthrust fault from the west or a thickening of the Kootenay formation, which may entail an extra 500 to 700 feet of drilling. The outfit is working at 2,605 feet with a 10-inch bit and spiral stem, open hole being drilled with the 10-inch casing hanging at 3,218 feet.

Stockmen Oils' No. 1, LSD 1-2, Section 27-20-3w5, is at 3,750 feet and drilling either in the bottom of the Kootenay formation or the top of the Fernie shales. From the upper horizons the well is making around 2,500,000 feet of gas per day. Spooner Oils' No. 1, LSD 12, Section 13-20-3w5, has finished pulling and resetting the 10-inch casing and is drilling about 300 feet in the Dakota sand, at 2,965 feet. An oil showing was met at 2,600 feet between the Benton shale and the Dakota, and two small gas shows have been struck. Vulcan Oils' No. 2, LSD 11, Section 13-20-3w5, has a derrick up and is putting in machinery. Spooner Oils' No. 2, Section 24-20-3w5, will start work on derrick as soon as Vulcan No. 2 has finished rigging up.

Regent Oil Co.'s LSD 16, Section 1-20-3w5, has resumed drilling after setting the 20-inch casing at 100 feet. Okalta Oils, LSD 1, Section 1-20-3w5 is at 2,700 feet and working on casing.

The Mid-West Oil Co. of Calgary will be reorganized as Mid-West Petroleums, Ltd. Under the reorganization scheme recently formulated, application is being made for a new charter. Reorganization will be followed by development work on the Mid-West holdings in the Turner Valley Field.

Moose Mountain

In the Moose Mountain district, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is resuming at 750 feet after cementing the 12½-inch casing.

In the Morley Reserve area, Wabash Oils, Ltd. is drilling in the Kootenay formation around 200 feet. Kananaskis Oil Operators, Ltd. of Calgary is arranging for a test with a standard outfit on the Nat Lea lease. Directors of this company are Nat and George Lea, John C. Noell and J. W. Dwyer of Calgary and Reuben Goodall of Coronation. Gold Coin Oils, Ltd. after running casing to 1,476 feet has resumed its diamond drill test at that depth, where the drill is in the lower Benton shales.

In the Border Fields, Mount Royal Oil Co. has drilling equipment on the ground for its test in LSD 4, Section 7-6-1w5, west of Pincher Creek, and work is being commenced on the derrick. In the Red Coulee area west of Coutts, Alberta-Flathead Oil Co. has a location in NE, Section 31-14-2w4. On the Montana side, it is reported that the Monalta Oil Co. will drill a test for a Calgary syndicate on the Pat Buckley ranch, 6 miles from Sweetgrass. The location is somewhat south of the abandoned Imperial-Red Coulee well. A Calgary syndicate is reported to have leased 7,500 acres in Township 8-18w4, south of Chin, in Southern Alberta. This is the first acreage filed in the district.

Anglo-Persian to Enter

It is reported that the Anglo-Persian Oil Co. will this season open an office at Calgary from which an extensive geological survey will be carried on, preliminary to undertaking development work in the Canadian West. The Anglo-Persian some years ago applied to the British Columbia Provincial Government for extensive drilling concessions in Northern British Columbia; and has done some deep drilling in New Brunswick under arrangements with the New Brunswick Gas & Oilfields, Ltd. which holds an exclusive concession covering a large area. It is understood that the policy of the Dominion Government in refusing to grant exclusive concessions has hitherto deterred the Anglo-Persian interests from invading the prospective fields of western Canada.

It is also reported that W. Esmay, representing the Midwest Refining Co. of Denver, Colo., recently visited Calgary to look over the Alberta prospects for his company; but that no decision has yet been reached by that company in regard to work in the Canadian West, though it is understood Southern Alberta is being particularly considered. Montana interests headed by E. B. Coolidge are also reported to be sending a geologist into the Alberta Fields.

The Equitable Oil Co. of Regina, Sask., is planning to drill two tests in the Montana Fields. B. V. Hole of Casper will have the contract.

In Southern Alberta, Devenish Petroleums, Ltd. LSD 5, Section 27-5-14w4, is getting in shape to resume drilling at 2,330 feet, after being shut down for the winter.

In the Ribstone-Blackfoot area, east central Alberta, Advance Oil Co.'s No. 3 LSD 1, Section 16-45-1w4, is resuming work at 504 feet, after being shut down owing to cold weather. Ribstone Oils, Ltd. LSD 1, Section 1-46-1w4, is resuming at 1090 feet.

Big Six Oil Co. of Saskatoon, Sask., is locating a test near Kenaston, Sask. and will drill early this spring. The same company is getting ready to drill No. 2 test near its No. 1 producer in NW NE, Section 29-35-1w in the Montana Field.

Hudson Bay-Marland

The Hudson's Bay-Marland Oil Co. is getting ready for extensive geological work which will be carried on throughout the season in many different parts of the Canadian West. Under the direction of Glen M. Ruby with headquarters at Edmonton, lands in the three prairie provinces and in British Columbia will be examined, a staff of 40 geologists being engaged. Airplanes will be used to facilitate the work. A. M. Narroway, chief of the Topographical Survey Branch of the Department of the Interior at Ottawa, has announced that he has received instructions to co-operate with the Hudson's Bay-Marland Oil Co. in its exploration work, and will send government surveyors along with the exploration parties to ensure proper locations.

R. D. Canfield of Okland, Calif., has made arrangements with the Federal Government at Ottawa for the development of tar sand holdings in the McMurray district of Northern Alberta. Mr. Canfield has left for Edmonton to make arrangements for the construction of a plant.

Ontario Fields

In the Ontario Fields, Union Natural Gas Co. has finished Nos. 263 and 264 in the Tilbury Field, near Port Alma. The tests finished as fair gassers in the Tilbury sand, making around 2C0,000 feet a day each. The company is doing no further work at present owing to bad roads. The Southern Ontario Gas Co. has made a location on the lake side of the road opposite on the Nick Baldwin farm, opposite the old regulating station.

ARTESIA, N. MEXICO

(Continued from Page 48)

found to be only 200 feet. It is the intention of the Government to assist legitimate operators in every way possible, and experienced men from the department are willing at all times to aid the oil man.

Rules on Bonds

The Department of the Interior has issued the following ruling relative to bonds under oil and gas prospecting permits.

Hereafter applicants for oil and gas prospecting permits under the act of February 25, 1920 (37 Stat., 437) will not be required to furnish the bond at the time of filing of the application for the permit, conditioned against failure of the permittee to repair damage to the oil strata or deposits resulting from improper methods of operation, as provided by Section 4 (h) of Circular No. 672 (47 L. D., 437) and Circular No. 754. Such applicants, however, will be required, prior to the issuance of permit, to furnish bond in the sum of $1,000 or such other amount as may be fixed in special cases where a permit application embraces reserved deposits in lands theretofore entered or patented with reservation of the oil and gas to the United States, together with the right to prospect for, mine and remove the same pursuant to the act of July 17, 1914 (38 Stat., 509) or where the lands constitute a portion of a reclamation project, or are included in a reclamation homestead entry.

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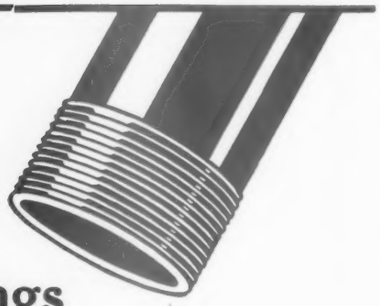

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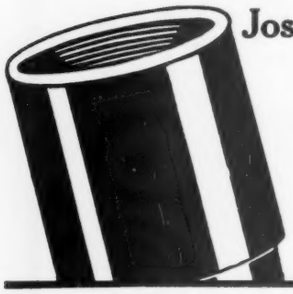

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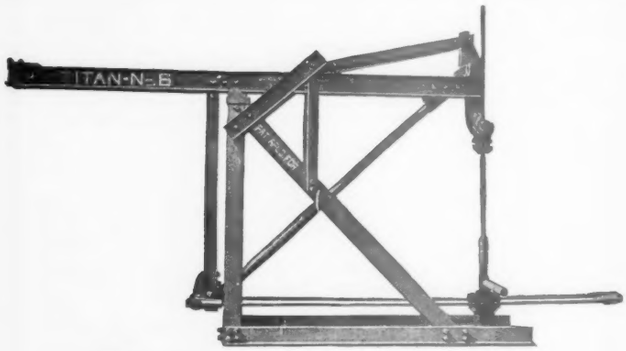

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shall give notice to the supervisor of oil and gas operations, Geological Survey, of the district in which the land is situated of his intention to drill, submitting his drilling plan for approval, together with a bond, with qualified corporate surety, in the sum of $5,000 conditioned against failure, (a) to carry on all operations in accordance with approved methods and practice and in conformity with the operating regulations to the satisfaction of said supervisor; (b) to carry out at the expense of the permittee, all reasonable orders of the Secretary of the Interior, or his authorized representatives; (c) to take all reasonable precautions to prevent waste of oil or gas, damage to formation or deposits, injury to life or property, or economic waste; and (d) to repair promptly so far as possible, any damage to mineral deposits or mineral bearing formations resulting from his operations.

The notice of intention to drill and drilling plan must be furnished in triplicate. Blank forms of such notice and bond can be obtained from the supervisor on request. If the plan is approved and the bond is acceptable, the supervisor will return to the permittee one copy of the notice with his approval endorsed thereon, upon receipt of which drilling may be commenced and carried on in accordance with the approved plan.

The bond will be transmitted by the supervisor to the Commissioner of the General Land Office for consideration and filing. All instructions and regulations in conflict herewith are modified to conform hereto, and Circular No. 754 is hereby revoked.

DRILLING REPORT

Eddy County

Clark & Grimm's No. 1 Daugherty, NE SW, Section 3-17-27, underreaming at 850 feet; Compton's No. 3, Mann permit, SE, Section 3-18-27, shut down at 400 feet; Compton's No. 2 State, NW, Section 2-18-27, drilling at 1,100 feet. Empire Gas & Fuel Co.'s No. 2-A Russell, SW SE. Section 34-17-27, on production; Empire Gas & Fuel Co.'s No. 3-A State, NE NW, Section 2-18-27, cleaning out after shot; Empire Gas & Fuel Co.'s No. 1-B Russell, SE NE, Section 34-17-27, drilling at 1,600 feet; Hamilton Petroleum Co.'s No. 1 Billings, Section 12-19-26, drilling below 1,200 feet; Hammond Oil Co.'s No. 1, NW SE SW, Section 15-16-25, drilling at 1,000 feet; Kelly's No. 1 Berry permit, NW NW, Section 27-17-27, casing set at 340 feet; Lackawanna Oil & Refining Co.'s No. 1, NE SE, Section 17-16-27, drilling at 1,625 feet; Lackawanna Oil & Refining Co.'s No. 7, C NW SE, Section 21-18-28, shut down at 2,142 feet; Marland Oil Co.'s No. 1 Hale, Section 11-20-30, fishing at 420 feet; Manhattan Oil Co.'s No. 1, Cronin permit, SE NE, Section 1-18-27 shut down at 2,300 feet; Midwest Refining Co.'s No. 1 Terry, SW cor. NW, Section 5-18-26, drilling at 600 feet; Ohio Oil Co.'s No. 1 Marland SW SW, Section 13-22-29, cementing pipe at 2,022 feet; Prairie Oil & Gas Co.'s No. 1 Keel, SE SE, Section 10-17-31, cleaning out after shot; Picher Oil & Gas Co.'s No. 4, NW cor. SE SE, Section 12-18-27, location; W. A. Stone Oil Co. No. 1 Hnulik, SW cor. NW NW, Section 25-17-26, drilling below 500 feet; Skelly Oil Co.'s No. 1 Lynch permit, Section 22-17-31, capped; Texas Production Co.'s No. 1 Robinson, NE SW, Section 25-16-31, erecting derrick; Mid-Continent Oil Co.'s No. 1 Woolley, Jones, C SE, Section 21-17-30, drilling below 3,400 feet.

Chaves County

Arena Oil Co.'s No. 1, SE, Section 24-12-30, moving materials to lease; Delmar Oil Co.'s No. 1, Section 22-11-26, shut down, plugging at 1,960 feet; Gibson Oil Corp's No. 1 Forsyth, C NE, Section 8-11-23, shut down at 675 feet; A. D. Morton No. 1 SW SW, Section 28-11-23, location; Texas Company's No. 1 Dunken Dome, SW, Section 29-17-18, drilling at 3,225 feet.

Lea County

Cap Rock Oil & Gas Co.'s No. 1, SE, Section 11-16-32, drilling below 980 feet; Covert No. 1, NE NE, Section 15-21-33, underreaming at 1,875 feet; Exploration Co.'s No. 1 NE, Section 25-19-35, drilling below 1,400 feet; Inglefield & Bridges' No. 1, Section 4-17-34, drilling below 4,735 feet, 3,200 feet oil in hole; Maljamar Oil & Gas Corp.'s No. 1 Beardsley, SW SW, Section 15-17-32, ready to spud; Grace Mitchell No. 1, SW, cor., Section 5-17-32, running 6⅝-inch casing, making 200 bbls. daily; Ohio Oil Co.'s No. 1 William Mitchell NE cor. SW, Section 18-17-32, shut down for casing at 4,26[illegible] feet; Texas Production Co.'s No. 1 Jackson, SE cor., Section 4-20-34, ready to spud; Texas Production Co.'s No. 1 Rhodes, NW, Section 22-26-37, ready to spud.

FARMINGTON, N. MEX.

(Continued from Page 44)

and drilling again resumed. They have reached a depth of 530 feet and are in a sand that in the other Bloomfield wells has carried artesian water, but in this hole the sand is dry.

The Portage Oil & Gas Syndicate operating on the Glade structure 4 miles northeast of Farmington, Section 24-30-13, has been awaiting the arrival of a shipment of casing since striking a heavy showing of gas and some oil a week ago. The casing and a new frame arrived the first of the week and are being put in place. They are very confident they are near production and expect to bring in the well shortly after the casing is set and drilling resumed.

Taylor & Burke, operating on the Mancos structure, 19 miles due north of Shiprock, this week encountered a stray sand that is believed to be about 100 feet above the top Dakota sand, in which a flow of oil estimated at 10 bbls. per day was encountered. The oil is an olive green color and will probably test about 40 degrees. While this is not considered commercial production, it gives strong hope that the Dakotas will prove good producers when tapped.

Hospah District

The second well in the Hospah district of the Seven Lakes Field is now under way. H. L. Williams has let the contract to Galli & Greer for a turnkey job on the Petit permit, 1½ miles north of the Midwest producer in McKinley County. The well started with a 15½-inch drill, and the conductor pipe will be set at 80 feet and cemented in. The contract calls for drilling 2,000 feet if oil or gas in commercial quantity is not encountered at a shallower depth. W. R. Childers, an operator in the San Juan Basin, is also moving a rig into this district which he shipped in from California.

The Continental-Santa Fe companies, operating on the Rattlesnake structure 30 miles west of Farmington, in well No. 17 (the deep test), Section 2-29-19, are still endeavoring to sidetrack lost pipe and have made no progress in depth. In well No. 23, Section 12-29-19, they are drilling at a depth of 960 feet. Production was encountered at 845 feet, but this was cased off and they are drilling deeper to test the other sands. In well No. 1, Section 2-29-19, which is being deepened for a water well to supply the camp, is drilling at a depth of 1,827 feet. A water-bearing sand is expected to be encountered at about 1,900 feet.

The Continental Oil Co., operating on the Table Mesa structure, 25 miles southwest of Farmington, Section 3-27-17, in well No. 11, are drilling in shale at a depth of 1,050 feet.

The Midwest Refining Co.'s well on the Hospah structure, whose production created considerable excitement several weeks ago, has been mudded off, and they are drilling deeper in order to test the Dakota sands at that point. Another strike is reported at a depth approximately 100 feet deeper in this well, but no estimate of the flow has been made public.

Red Mesa

The Miley Oil Co., operating on the Red Mesa structure, Section 32-33-12, put in a shot that loosened the tools in the bottom, but as the string was dropped from the top it was found impossible to get them through the casing, so another attempt at sidetracking will be made. The Ohio Oil Co., operating on this structure in well No. 2 is drilling in shale at a depth of about 1,000 feet.

The San Juan Petroleum Corp., drilling on the J. W. Palmer deeded tract,

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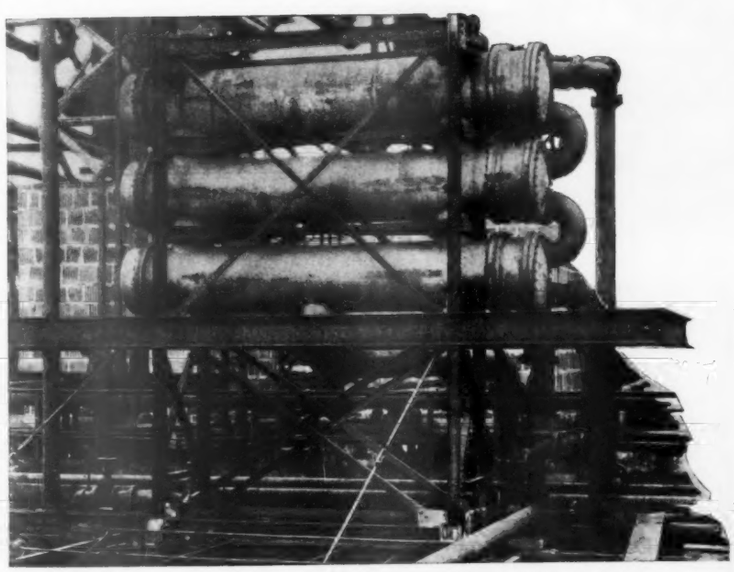

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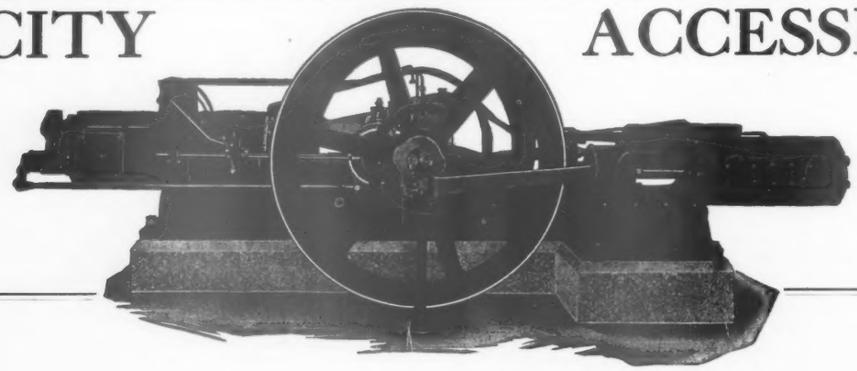

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one-half mile west of the town line of Farmington, brought in a gasser estimated at 1,000,000 feet last week at a depth of 1,075 feet. The gas blew out 300 feet of water standing in the hole and threw it higher than the derrick. The water and mud was blown out by heads 19 times, five times throwing it over the derrick before it was brought under control. The drillers are now trying for a water shutoff, when a test of the gas flow will be made. This well is located on NE NE Section 17-29-13. The gas is wet and has a large gasoline content. It is planned to utilize this well to supply gas for the town.

SOUTHWEST WILDCATS

(Continued from Page 55)

Valves were ordered and the wrong kind arrived and a change was necessary, making a delay of one week.

There is still some indications of wildcat activity in the counties of Lavaca, Washington, Fayette and others adjoining. C. M. Frost, of Houston, last week filed leases on a block aggregating about 12,000 acres in eastern Fayette County, northeast from La Grange. Leases on some 40,000 acres were filed by Houston people in Colorado County between Glidden and Oakland, running from near Glidden, in the center of the county, west to near Oakland.

New Tests Planned

Several new wildcat tests are getting ready to start soon. W. G. French is to start two. One will be on the Shiner ranch, in the central part of McMullen County, and the other on the Gray ranch in northern Duval County. W. S. Stovall and W. W. Kelly will start a wildcat in Live Oak County on the McWhorter ranch in the William J. Cannon Survey, an offset to the Cartwright ranch on which Houston Oil Co. has a gas field.

W. A. Stephens' test on the Jim Camp farm in southern Kinney County was spudded in last Sunday. George B. Pickett is preparing to start a well soon on a 3,000-acre block of leases out of the Ball ranch in Duval County, several miles southwest from the Piedras Pintas salt dome, and National Oil Co. is preparing to start a test on a 3,000-acre block east of Pickett. There is thought to be a big salt dome in that territory.

LAREDO TERRITORY

Duval County

Humble Oil & Refining Co.'s No. 12 Singer, Survey 4, located 2,600 feet to north line and 2,000 feet to west line, has set surface casing at 300 feet; No. 2 Dilworth, Survey 120, located 2,350 feet to west line and 1,000 feet to south line, is fishing at 2,106 feet. Humble-Reiter-Foster's No. 4 Kohler, Survey 400, at 660 feet to SW cor., is setting casing at 2,339 feet; No. 5 Kohler, Survey 395, at 1,080 feet to east line and 530 feet to south line, is rigging up. H. B. Schlesinger Trustee's No. 1 Hahl, Survey 76, located 660 feet to NW cor., is abandoned at 3,008 feet, contract depth. Magnolia Petroleum Co.'s No. 1 Hahl, Survey 51, located 330 feet to SW cor., at 4,070-90 feet has set casing at 4,070 and is ready to test. Looks like a gas well. Humble Oil & Refining Co. has derrick up in Survey 102, at 5,280 feet to south line and 4,500 feet to east line, for No. 2 Welder-Woods.

Jim Hogg County

Holden and others' No. 3 Jones, Share 27, Block 136, located 330 feet to NE cor., is drilling at 1,200 feet. Hamilton and others' No. 1 Holbien, Block 44, Hamilton subdivision, at 158 feet to south line and 363 feet to west line, is drilling at 1,100 feet.

Starr County

Milham Corp.'s No. 1 Guerra, Porcion 107, located 14,520 feet to south line and 1,320 feet to east line, at 2,760 feet is shut down for pump repairs. No. 2 Salinas, Porcion 111, SE cor., is drilling at 2,620 feet in hard lime. Sterling & Suladie's No. 1 Yzaguirre, Block 8, Sterling & Suladie subdivision at 1,320 feet to SW cor., has cored sand at 2,765 feet.

Webb County

Cintex Petroleum Co.'s No. 1 Pearl, Survey 72, Block 5, located 150 feet to SE cor., is rigging up. W. O. Wheatley's No. 2 Kruger, Survey 1,570, Block 4, located 140 feet to north line and 421 feet to east line, is fishing. Rio Grande Oil Co.'s No. 1 Urbahn, Santo Tomas tract 10,000 feet to south line and 20,000 feet to east line, is moving on to resume drilling at 1,600 feet at which depth well was abandoned some few years ago. Rawlins & Pelton's No. 1 Garcia, Survey 736 Block 6, located 150 feet to SW cor., is drilling at 1,100 feet. O. W. Killam's No. 1 Billings, SE NW Survey 43, located 150 feet to south line and 750 feet to west line, is drilling at 1,610 feet.

Zapata County

Earl K. Bateman has made location in Share 2, El Crullo Grant for No. 2 Sorapio Vela. Mission Oil Co.'s No. 1 Slator, Borrego Survey, Block 16, at 4,577 feet to southwest lines and 11,853 feet to southeast lines, is drilling at 1,300 feet. Buffalo Erie Syndicate in Block 2, R. V. Hill subdivision is skidding derrick over 900 feet east to location for the No. 3 Martinez.

SAN ANTONIO DISTRICT

Atascosa County

Grayburg Oil Co. has made location for No. 27 G. W. Caruthers in J. W. Cooper Survey, 845 feet to east line and 825 feet to north line, in the Somerset Field; No. B-21 Hartung, Survey 1,172, at 1,465 feet to west line and 740 feet to south lines, has been spudded in.

Bexar County

Bay Shore Production Co. has made location for No. 1 Walsh in NW cor. of lease. Marland Oil Co.'s No. 1 San Antonio Truste, J. Pickins Survey, Block 1, at 2,280 feet to east line and 825 feet to south line, drilled in 1926 with diamond core drill, is moving in rotary to make a test. A. R. Beal Trustee No. A-1 Ackerman, at intersection of White and St. Hedwig roads is drilling at 50 feet.

Bastrop County

Johnson Brothers' No. 1 Williams, Doyle Survey, 1,050 feet to northwest lines and 750 feet to southwest lines, has been abandoned at 1,720 feet in top of the chalk. Neal A. Nelson's No. 1 Arthur Naumann 5 miles south of Smithville, is standing at 1,030 feet.

Bee County

Nichols & White's No. 1 Hicks, Hicks-Ball Survey, Block 19, NW cor. of block, is shut down at 821 feet.

Caldwell County

Fred Adams has spudded in No. 1 well on the Walter Ellison lease. The Texas Company is moving in rig for the No. 1 Goertz near Red Rock. Sutton & Smith's No. 2 Robert Carter, G. Hinde Survey, is setting 8¼-inch casing at 2,345 feet to test Eagle Ford shale. L. I. Dodwell's No. 1 Lawler, James Pinchback Survey, 750 feet to north line and 150 feet to east line, topped the chalk at 2,174 feet has been abandoned. Flynne Brothers' No. 1 Carter, 4 miles south of Lytton Springs, is setting casing at 2,500 feet.

DeWitt County

McNeil & Matthews No. 1 A. D. Kaiser, A. Dillard Survey, 1,508 feet to NW cor., is drilling at 500 feet. Yoro Development Co.'s No. 1 Tom Burns, 8 miles south of Yoakum, has been abandoned at below 2,500 feet and derrick moved 1 mile across the railroad tracks for the No. 2 well. Empire Southern Oil Co.'s No. 1 C. G. Smith, 8 miles southwest of Cuero, is setting 6⅝-inch casing at 2,441 feet to make a test.

Dimmitt County

Humble Oil & Refining Co.'s No. 1 City National Bank, Survey 654, 700 feet to north line and 2,000 feet to east line, is fishing at 1,481 feet.

Frio County

P. A. Neilan's No. 1 Blackaller, James Gonley Survey, has gone over 6⅝-inch casing pulled in two by using 8¼-inch and is down 800 feet in the old hole.

Fayette County

La Fayette Oil Co. No. 1 Aug. Marquardt, between Mecklenburg and Nechanitz, is drilling at 450 feet.

Guadalupe County

Pat Armstrong's No. 1 Dale is in top of the chalk at 1,652 feet and shut down. F. A. Lain's No. 1 F. C. Weinert, W. K. Estell Survey, 150 feet to center of north line, is setting 10-inch casing at 400 feet.

Gonzales County

Bristol Oil & Gas Co.'s No. 2 Denmann, A. Zumwalt Survey, is shut down at 807 feet. Martin Oil & Development Co.'s No. 1 Preston, near Cheapside, Pace league, is shut down at 1,540 feet. E. Lee Moore's No. 1 Elder, is drilling at 1,782 feet in sandy shale. Joe Bruner's No. 1 Vaughan, Kent Survey, 200 feet to west line and 300 feet to south line, is shut down at 1,406 feet for repairs.

Hays County

J. E. Rodgers' No. 1 Hohenburg, 2½ miles east of San Marcos, is moving in rig from Texas Border Oil & Gas Co.'s test in the Somerset Field.

Karnes County

Earl B. Reynolds No. 2 Butler, Block 43, at 1,000 feet south of No. 1, is being put on the pump, total depth 1,947 feet. Alamo Drilling & Leasing Co. (formerly Ray Oil Co.) No. 1 Szalwinski, L. Manchaca Survey, 500 feet to northwest lines and 200 feet to southeast lines, has been spudded in.

Kerr County

Walker-Van Duyn's No. 1 Leigh, Survey 38, located 500 feet north of river and 150 south of railroad, is drilling at 2,055 feet in lime, continues from 1,610 feet.

Kinney County

W. A. Stephens and others' No. 1 Jim Clamp, John Winters Survey 346, center of survey, has been delayed in spudding in, waiting for derrick lumber. Havelin Oil Co.'s No. 1, Section 21, Block 5, 18 miles from Del Rio, is fishing by bailer at 4,305 feet in black shale.

Lampasas County

J. B. Davis-Lee Bullock No. 1 Ranch, 8 miles north of Lampasas, has derrick up, and moving in machinery, expect to spud in the last of March. S. I. Smith and others' No. 1 W. F. Faught, 2 miles from Nix and 12 miles west of Lampasas, is drilling at 175 feet in sandy shale.

Live Oak County

Warren Wood Hunt has made location for No. 1 B. McNeil in Jane Curry Survey, 4,000 feet to northeast cor. and 3,000 feet to northwest line. Houston Oil Co. has derrick up for No. 17 Cartwright, Cannon Survey, 1,500 feet southwest of No. 1 Riverbed; No. 1 Dunning, northwest of present field, is setting casing; No. 1 Sellers, J. McMullen Survey, 2,453 feet east of No. 2, is drilling at 1,550 feet. J. W. Walton's No. 1 Roberts, west of Three Rivers, is at 1,740 feet and tested four sands encountered so far and all had a little gas.

Medina County

Western Gas & Fuel Co.-C. E. Lange's No. 4 Adams is drilling at 485 feet in the Adams Gas Field. Yantis and others' No. 1 Chandler, Durst Survey No. 13, located 2,150 feet to north line and 2,742 feet to east line, is on rock at 65 feet and changing to rock bit. Witherspoon Oil Co.'s No. 2 Redus, Survey 92, is rigging up; No. 1 Nixon, Survey 119, is rigging up. R. P. O'Brien, No. 1 J. P. Nixon, Survey 531, SE cor., is on hard rock at 195 feet. F. L. Williams No. 1 John Fohn, Survey 115, east 100 acres, SE cor., is drilling at 680 feet. Medina Oil Co.'s No. 1 Taylor, Survey 135, completed some time ago at 356 feet is to be carried down to Pennsylvania lime. Alamo Drilling & Leasing Co.'s No. 1 Kennedy Survey 412, has been abandoned at 1,456 feet, topped Edward at 1,401 feet. Ina Oil Co.'s No. 2 Fingers, Survey 746, Lot 5, located 300 feet south of No. 1, is drilling at 1,150 feet. Cecil Switzer's No. 1 Zerr, Survey 456, is setting 8¼-inch casing at 2,760 feet. J. S. Wheless-E. T. Peter's No. 1 Berger, William Teel Survey No. 341, is drilling at 1,150 feet.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 1 Indio, Survey 14, Bryan, center of survey is drilling. Ryeade Oil Co.'s No. 1 Chittim, has hole clean at 5,525 feet after three months fishing job, and resumed drilling; No. 2 Sullivan is drilling at 3,400 feet.

McMullen County

George Pickett's No. 1 Jacobs, Survey 7, located 660 feet to CNL, is taking core at 170 feet. Dodson and others' No. 1 Franklin, SW, Survey 31, is shut down at 1,100 feet. Houston Gulf Gas Co.'s No. 5 Jacobs, J. Rees Survey, 150 feet east of No. 1 is standing at 904 feet. George M. Ball's No. 1 Kuykendall, Survey 7, is standing at 1,390 feet.

San Patricio County

F. S. Smiley's No. 1 T. E. Wilson, several miles south of Odem, and one-quorter of a mile northwest of Angelitz, is rigging up. W. L. Pearson and others' No. 4 Cage, Rachal Survey, 1,200 feet north of No. 2, is setting casing in sand found at 2,400 feet; No. 5 Cage blew out at 2,400 feet while setting casing, and 4½-inch liner is now being set. Huber-Crawford's No. 1 Mathis, Block 17, N. Delgado Survey, 300 feet to northwest lines and 2,500 feet to southwest lines, is drilling at 1,400 feet.

Nueces County

Pearson and others' No. 1 John Dunn, south side of Nueces Bay, is drilling at 1,900 feet.

Sutton County

National Potash Co. of America is diamond core drilling on the Ross lease, and has ordered out second drill for another test on separate block leases.

Wilson County

Thomas and others' No. 1 Aug. Haese, Survey 124, located 300 feet to NE cor., is rebuilding derrick.

KANSAS FIELDS

(Continued from Page 46)

3,050 feet and was plugged back to 2,428 feet and shot with 160 quarts and produced 30 bbls. In the Winfield Pool, Roth & Faurot's No. 1 City of Winfield, SW cor. NE, Section 22-32-4 was completed for 6,500,000 feet of gas from sand 2,271-91 feet. Arkansas Fuel Oil Co.'s No. 3 Brown, NE cor. SE SW, Section 6-32-5 was given a shot of 30 quarts and is making 90 bbls. from sand 2,331-47 feet. Neeley Oil & Gas Co.'s No. 1 Bell, C NW NE, Section 5-33-5 is a 2,000,000 foot gas well in the shallow sand 610-25 feet.

Elk County

Union Gas Corp.'s No. 11 Leffingwell, NE cor. SE SE SW, Section 14-31-10 is rigging up the machine. Location was made for No. 12 Leffingwell, SE cor. SW, Section 14-31-10. Location has also been made for No. 13 Leffingwell, SW cor. SE SW, Section 14-31-10.

Union Gas Corp.'s No. 7 Leffingwell, SE cor. NE NE SW, Section 14-31-10 was completed for 250 bbls. in sand 1,604-34 feet. No. 9 Leffingwell, NE cor SE SW, Section 14-31-10 is making 300 bbls. from sand 1,624-46 feet.

Greenwood County

Ritchey & Moore have the rig on the ground for No. 2 Pixlee, SW cor. NE SE, Section 7-22-10. Empire Gas & Fuel Co. is building the rig for No. 17 Kiper, C SE, Section 11-22-11. The rig is also being built for No. 16 Fromme, C E half NW, Section 14-22-11. The Prairie Oil & Gas Co. made location for No. 1 Morris, NW cor. NE SW, Section 5-24-12. Location was also made for No. 1 Beevers, SW cor. NW, Section 25-24-12. Polhamus and others have the rig up for No. 1 Townlot, SW cor., Section 35-25-10.

Manhattan Oil Corp.'s No. 3 Sheppard, SE cor. NW SE, Section 2-22-10 had sand 2,081-2,102 feet and drilled to a total depth of 2,141 feet. The well was shot with 80 quarts and is producing 35 bbls. Sinclair Oil & Gas Co.'s No. 53 Browning, C E half SE, Section 19-22-10 was shot with 20 quarts in sand 2,297-2,372 feet and produced 125 bbls. No. 54 Browning, CWL NW SW, Section 20-22-10 produced 125 bbls. after a shot of 20 quarts in sand 2,265-2,340 feet. Roxana Petroleum Corp. and others' No. 1 Hood, SE cor. SW SE, Section 14-22-11 made 170 bbls. the first 24 hours after a shot of 100 quarts in sand 1,843-73 feet. Skelly Oil Co.'s No. 19 Wick, NE cor. SW NW, Section 27-22-11 was shot with 80 quarts in sand 1,937-66 feet and made 110 bbls. Darby and others' No. 2 Boles, SE cor. NW SW, Section 10-22-12 was shot with 80 quarts and produced 75 bbls. from sand 1,786-1,810 feet. Empire Gas & Fuel Co.'s No. 1 Fankhouser, NE cor. NW NE, Section 36-22-12 is producing 150 bbls. from sand 2,179-81 feet. Simmons and others' No. 2 Luthi location NE cor. SE SW, Section 29-22-13 has been abandoned. Location for No. 3 Luthi, SW cor. SE SW, Section 29-22-13 has also been abandoned. Sullivan and others' No. 1 Schwab, CWL SW NE, Section 3-23-12 has been abandoned at 1,875 feet. The Prairie Oil & Gas Co.'s No. 1 Johnson "B," NW cor., Section 22-24-12 made 25 bbls. the first 12 hours from sand 1,490-1,512 feet. Haverhill and others' No. 17 Inthurm, CNL S half SE, Section 4-23-13 was shot with 80 quarts in sand

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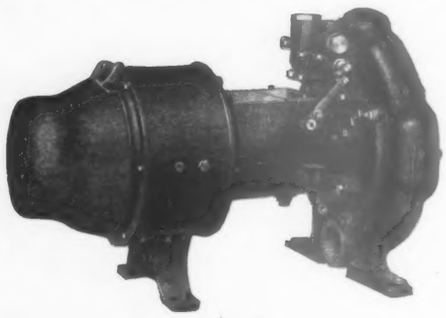

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1,592-1,623 feet and made 40 bbls. Jennings and others' No. 1 Whipple, NE cor. SE, Section 30-25-11 has been abandoned at 2,001 feet. Kinney Refining Co. and others' No. 8 Hull, SE cor. NE NW, Section 10-26-8 is a 25-bbl. well in sand 2,430-65 feet. Roth & Co.'s No. 2 Riley, C NW SE, Section 2-26-11 was abandoned at 650 feet.

Lyon County

Loy and others made location for No. 1 Jones, SE cor. SW SE, Section 16-21-10. Schwartz and others' No. 3 Jones, NW cor. SE SE, Section 31-21-12 is a dry hole at 2,020 feet.

McPherson County

The Prairie Oil & Gas Co. is building the rig for No. 1 Wedell, SW cor. NW, Section 6-21-2.

Marion County

Allison & Fitzwilliams have the rig on the ground for No. 1 Beck, SE cor. NE, Section 15-21-3. Crow and others have the rig up for No. 1 Townsend, SW cor. Section 31-21-4.

Rice County

Allison & Fitzwilliams made location for No. 1 Poland, C NE, Section 36-19-7. The Prairie Oil & Gas Co.'s No. 2 Walstein, SW cor. NE, Section 2-21-6, swabbed 100 bbls. at total depth of 3,396 feet.

Russell County

H. F. Wilcox Oil & Gas Co. made location for No. 1 Bellar, SW cor. SE, Section 16-12-15.

Saline County

Brown & Woodward's No. 1 Sheldon, SE cor., Section 26-15-2w is dry and abandoned at 3,592 feet.

Stephens County

Independent Oil & Gas Co.'s No. 1 Jones, C SW, Section 31-33-37 is being deepened and now drilling at 1,280 feet.

Sumner County

Roxana Petroleum Corp. made location for No. 2 Taton, NE cor. NW NW, Section 36-31-2. Selby Oil & Gas Co. made location for No. 2 Island, CSL NW SW NE, Section 36-31-2. Churchill Pool. Roxana Petroleum Corp. made location for No. 1 Emerick, CEL W half SW NE, Section 14-32-2. Ramsey and others made location for No. 1 Caldwell, SW cor. NE, Section 22-32-2.

Amerada Petroleum Corp.'s No. 1 Everts, SW cor. SE SW, Section 24-31-2 in the Churchill Pool is dry and abandoned at 2,820 feet. Roxana Petroleum Corp.'s No. 1 Wiles, SW cor. NW NE, Section 25-31-2 had sand from 1,849 feet to 1,905 feet and after a shot of 60 quarts made 800 bbls. No. 3 Riverbed, SE cor. SW NW, Section 25-31-2 was shot with 80 quarts in sand 1,848-1,909 feet and made 450 bbls.

Woodson County

The Prairie Oil & Gas Co. made location for No. 1 Northcote, NE cor. SW, Section 9-25-14.

EASTERN FIELDS

(Continued from Page 46)

Richland Township, Belmont County, Crouch & Co. have completed a test on the G. Christie, a very light pumper in the Berea grit.

Meigs County

In Section 31, Chester Township, Meigs County, Barneby & Frick have a 2-bbl. pumper in the Berea grit at a test on the Lucinda Genheimer. In Sutton Township, in the northwest quarter of Section 20, the Dailey Oil & Gas Co.'s test on the Gile Hysell is completed and shot in the same formation and is the same kind of a pumper. It is also a gasser good for 500,000 feet.

Eaton and others have completed No. 4 William Harding, northeast quarter Section 7, Louden Township, Carroll County. It is good for 15 bbls. in the Berea grit. In Section 35, Mill Township, Tuscarawas County, the Stillwater Oil & Gas Co. has a Berea grit duster at a test on the C. C. Wolf. In the northwest quarter Section 12, Washington Township, Hocking County, the Hope Construction & Refining Co.'s No. 7 B. K. Triton is dry in the Clinton.

In Section 29, Alexander Township, Athens County, Cook and others have a duster in the Berea grit at a test on the Julian Grift farm. In Section 28, Ward Township, Hocking County, Cohen and others are due in the Clinton sand at a test on the Edward Pummell farm. In Pike Township, Coshocton County, the Leonard Oil & Gas Co. is due for the same formation at a test on the Edward Young farm. The Gold Crown Oil & Gas Co.'s No. 3 on the Francis Dillon farm, in Washington Township, Monroe County, is a gasser in the Big Lime formation.

Morgan County Duster

In Section 12, Marion Township, Morgan County, J. B. Kellar & Co. have a duster at a test on the William Ricker farm. In Louden Township, Carroll County, Eaton & Co.'s No. 4 on the Harding farm is good for 15 bbls. a day in the Berea grit. In Section 16, Ludlow Township, Washington County, the Bentz Oil Co. is fishing at a test on the Henry H. Holland farm. In Lot 26, Newton Township, Licking County, the North Fork Oil Co.'s Nos. 38, 39 and 40 on the Edward McKinney farm are good for 3, 4 and 5 bbls., respectively. In Lot 6, same township, the Ohio Fuel Supply Co. has 3-bbl. pumpers at No. 2 on the Robert B. Stone and W. L. Brooks farms.

Knox County

The Ohio Fuel Supply Co. has completed No. 2 on the Thomas McMann farm, in Section 11, Jefferson Township, Knox County, and has a gas well good for 1,000,000 feet per day. Completed at a depth of 2,930 feet in the Clinton sand.

In the same township and county, in Section No. 1, the Upham Gas Co. completed No. 1 well on the George W. Sapp farm at a depth of 2,945 feet in the Clinton Lime and has a gas well good for 200,000 feet per day.

West Virginia

The West Virginia fields had quite a number of completions, principally gas wells. On Blue Creek, Center district, Calhoun County, the United Fuel Gas Co. has a fair gasser in the Big Injun sand at a test on the Lee Gainer farm. On Laurel Creek, same district, C. B. Lewis & Co. have a light gasser in the same formation at a test on the M. E. Kelley farm. On Daniels run, Lee District, McIntosh & Scott have a gasser on the G. G. Kelley farm.

In Sherman district, Calhoun County, the White Pine Oil & Gas Co. has completed a 5-bbl. pumper in the Big Injun sand on the M. J. Ayers farm, located 3,000 feet east of the same company's test on the Silas Simmers farm. On Tanners Creek, Troy district, Gilmer County, the Hope Construction & Refining Co.'s test on the H. D. Allman farm is a gasser in the Big Injun sand good for 1,000,000 feet.

In Henry district, Clay County, the Virginian Gasoline & Oil Co. completed No. 16 on the J. B. Casto 160 acres and estimated to be good for 25 bbls. a day in the Big Injun sand.

Mingo County

Located on the waters of Slick Rock branch of Breeden Creek, Harvey district, Mingo County, the Public Gas Corp. has drilled their No. 24 well on the Logan Cannel Coal Co. property in the Maxon sand and swabbed 25 bbls. the first 24 hours. The well is to be drilled deeper. This well is 700 feet southwest of Red Jackett No. 1 gas well and 1,000 feet north of Logan Cannel Coal Co. No. 23 on the same lease.

In Mooresville Voting Precinct, Clay district, Monongalia County, the Swatika Oil & Gas Co. has completed No. 1 well on the D. R. Wright farm at a depth of 3,200 feet and it is a gas well good for 750,000 cubic feet per day.

The South Penn Oil Co. completed No. 53 well on the O. D. Stockley farm to the Injun sand and it is good for 40 bbls. per day. It is located in Henry district, 550 feet south of the same company's No. 41 well on the same farm.

Pleasants County

Hammet and others have completed a test on the W. P. McTaggart farm, in Grant district, Pleasants County. It is dry in the Berea grit. On Big Paw Paw Creek, Paw Paw district, Marion County, the Owens Bottle & Machine Co. has drilled a test on the M. L. Straight farm through the fifth sand and dry. In Mannington district, the Carnegie Natural Gas Co.'s test on the Isaac Hibbs farm is showing a little oil in the Gordon sand.

In Murphy district, Ritchie County, the Hope Natural Gas Co.'s test on the H. M. Lewis farm is a gasser in the Big

Injun sand. In Mannington district, Marion County, the same company's test on the James H. Furbee farm is a gasser in the Big Injun sand. In Church district, Wetzel County, Walter Null is testing for oil in the Gordon sand on the C. J. Bartrug heirs' farm.

In Central district, Doddridge County, Guy Zinn & Co. have shut down for orders at 2,051 feet on the M. J. Cunningham farm. In DeKalb district, Gilmer County, Morris & Co. have a gasser in the Maxon sand at a test on the Julia A. Simmers farm.

In Ravenswood district, Jackson County, West Virginia, Edgar L. Boehm has completed his No. 1 well on the Thomas Burch farm, located on Trace Fork of Sandy Creek, and has a dry hole in the Cow Run sand. This well is located about 2,000 feet north of his No. 1 on the F. M. Taylor farm.

Ritchie County

On Whiskey Run, Clay district, Ritchie County, J. A. Glass & Co. completed a test on the Miller heirs' farm. It is a duster. The location is 1,000 feet west of production. On the north fork of Hughes River, Grant district, the Hope Construction & Refining Co. has a gasser good for 1,000,000 feet on the L. W. Lewis farm. On Trace Fork, DeKalb district, Gilmer County, Morrison & Co. have a light gasser in the Big Injun sand at a test on the Julia Simmers farm.

In Meade district, Upshur County, the French Oil & Gas Co. has a light gasser in the Maxon sand at a test on the Fay Hammer. In the same district, Taylor & Cavender have a rig up on the E. M. McCue farm.

In Ten Mile district, Harrison County, Hoffmier & Deegan have completed a test on the J. W. Williams and is a gasser in the 50-foot sand. In Clark district, the Clarksburg Light & Heat Co. completed No. 86 Homer Custer and is a gasser in the Speechley sand.

Wetzel County

In Center district, Wetzel County, the Richwood Oil Co. is testing for oil in the Maxon sand No. 14 John Mills. In Paw Paw district, Marion County, the Owens Bottle & Machine Co.'s test on the M. L. Straight is dry in the fifth sand. In the same district, the Hope Natural Gas Co.'s test on the A. H. Billingsby is dry in the same formation.

The Laurel Development Co. has a gasser in the Berea grit at a second test on the Eliza J. Mahone. In the same district, C. C. Wolfe has a gasser in the same formation. In Barboursville district, Cabell County, Ortman & Shipe completed at 3,325 feet a test on the Ortman-Shipe. It is dry in all formations.

In Walton district, Roane County, the United Fuel Gas Co.'s test on the Perry Jarvis is a gasser in the Big Injun. In Liberty district, Marshall County, the Cameron Heat & Light Co. has drilled down its test on the J. W. Quigley. It is a gasser in the Gordon. In Church district, Wetzel County, the Manufacturers Light & Heat Co.'s second test on the W. E. Johnson is a gasser in the Gordon.

On Plum Run, Williams district, Wood County, J. W. Reed's second test on the C. S. Reed farm is a duster in the first Cow Run sand. In the same locality, Mallory & Eflas had the same luck in the same formation at No. 3 on the S. Compton farm.

In Walker district, Wood County, the Richard Oil Co.'s test on the Phillip Kirsch farm is a duster in the Berea grit. In the same district, the Hope Construction & Refining Co. is due in the sand on the Roberts heirs' farm. The South Penn Oil Co. has the rig completed for No. 11 on the Sarah E. McPeak farm.

Southwest Pennsylvania

In North Versailles Township, Allegheny County, the Peoples Natural Gas Co. has drilled a test on the Alberta Tong farm into the 100-foot sand and is good for about 5,000,000 feet. It is the largest well completed in the vicinity of McKeesport since the excitement of some years ago.

At Beelers Mills, Beaver County, Harbison & Co. have completed a test on the Lanz heirs' farm. It is a duster in all sands.

In Whitley Township, Greene County, the Philadelphia Gas Co. has completed a test on the J. Morris farm. It is a gasser in the Bauard sand. In Franklin Township, the Mason Oil & Gas Co.'s test on the John D. Mason heirs' farm, drilled deeper, is a duster.

LOUISIANA-ARKANSAS

(Continued from Page 50)

2,759-73 feet. Ohio Oil Co.'s No. 4 Murphy, same section, has a fishing job at 2,480 feet, and the Peer Oil Corp.'s No. B-1 Palmer, same section, is milling casing at 2,380 feet. A. H. Ramage is waiting for a standard rig for No. C-11 Lawton, Section 10-16-15, with 600 feet of fluid in the hole, sand at 2,391-2,400 feet. Stewart and others' No. 8 Murphy, Section 9-16-15, drilled out the 10-inch plug at 80 feet and now is at 15 feet. Sunny Jim Oil Co. shot casing and sand at 2,385 feet and now is cutting to the bottom of the hole at 2,442 feet in No. 4 Flenniken, Section 9-16-15.

Ouachita County

In the western part of the Louann district of the Smackover Field, H. E. Clark completed a 7-bbl. pumper in his No. 3 Shirey, Section 36-15-17. It is in sand at 2,307 feet. This was the only completion in the county during the week.

Copen Haven and others are digging pits for No. 3 Berg, Section 13-15-17. Magnolia Petroleum Co.'s No. 4 Smith, Section 36, tested an oil showing at 2,248 feet. This test now is waiting for a standard rig with broken sands at 2,242-77 feet. Middlesex Oil Co., same section, also is waiting for a standard rig. It has 600 feet of oil in the hole from broken sands at 2,281-94 feet, in its No. 4 Shirey.

In Section 33-15-15, the Gulf Refining Co. has cemented 6⅝-inch casing at 2,358 feet in No. 10 Bennet, and also in No. A-25 Umstead at 2,351 feet. Sunny Jim Oil Co., same section, tested salt water at 4,103 feet in No. 12 Berry. It is drilling deeper at 4,116 feet. The Texas Pacific Coal & Oil Co.'s No. 9 Laney, Section 31, had a hole full of salt water at 2,414-15 feet but is arranging to shut this off and drill deeper. The Unity Petroleum Co. is drilling out the plug with standard tools at 2,388 feet in No. 8-A Umstead, Section 33.

Imperial Oil & Gas Co. is core drilling No. 9 McClanahan, Section 8-16-15, at 2,645 feet. Keever and associates are cleaning out No. 1 Hicks, Section 27-15-16. It tested salt water with a showing of oil at 2,290 feet. Marine Oil Co. is drilling at 1,002 feet in No. 11 Umstead, Section 5-16-15. It drilled out the 10-inch plug at 122 feet. Unity Petroleum Co.'s No. 1 Murphy, Section 2-16-15, is shut down at 2,615 feet waiting orders.

In the Stephens Field, Magnolia Petroleum Co.'s No. 2 Gosden, Section 15-15-19, tested salt water and is shut down waiting orders at 1,542 feet. Wesson and associated are drilling in gumbo at 1,900 feet in No. 1 Culp, Section 22.

Nevada County

A 40-bbl. pumper was given Nevada County with the completion of Dixie Oil Co.'s No. 1 Atkins, Section 9-14-21. It is producing from sand at 1,228-38 feet.

LEGAL

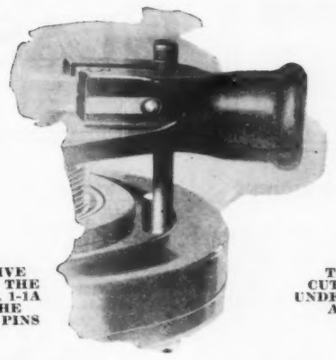
COMMISSIONER'S SALE.
ALLEN CIRCUIT COURT.
NOTICE OF SALE.
THE COMMONWEALTH OF KENTUCKY.
No. 3473
Richard C. Baker, Plaintiff,
Versus
Inter-Cities Oil Co., Defendant.

By virtue of a judgment and order of sale of the Allen Circuit Court, rendered at the January Term thereof, 1927, in the above cause, for a settlement of the affairs of the Inter-Cities Oil Co., I shall proceed to offer for sale at the Court House door in the City of Scottsville, Kentucky, to the highest bidder, at public auction on Monday, the 11th day of April, 1927, at One O'clock, P. M., or thereabouts (being County Court Day), upon a credit of 3 and 6 months, the property of the Inter-Cities Oil Co., being an up-to-date Oil Refinery, with all property and accessories, including pipe lines, usual and common to such properties. The personal property will be sold in units at the Refinery at Scottsville, Kentucky, and small bidders will therefore have a chance to buy such articles as they may need. Inventory may be seen at the office of the undersigned.

Purchasers may pay cash at their option, or execute usual bond.

Witness my hand this 21st day of March, 1927.

G. W. WEAVER,
Master Comr., Allen Circuit Court.



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CHEMICAL engineer and refinery superintendent with over 22 years' experience in European and American crude oils, specialist in lub oils and high vacuum distillation, desires change. Best references. Box B-736, The Oil and Gas Journal, Tulsa, Okla.

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819 Oliver-Eakle Bldg.,
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OHIO COUNTY, KENTUCKY
Acreage for sale, close to producers and drilling wells. Best play in Kentucky.
G. Taylor Yewell, Owensboro, Ky.

ARKANSAS and Mississippi leases and royalties near drilling wells. Any size tracts. Get my prices. Maps free. Drilling blocks handled. W. A. Feild, 905 W. 13th St., Little Rock, Ark.

TEN-YEAR oil lease, SW¼ of SE¼. Sec. 13-4n-6w, $8 per acre. Theodore Hall, Box 912, Pawhuska, Okla.

80-ACRE LEASE, Section 13, Block 13, Ochiltree County, Texas; priced right. Price subject to change. Address W. L. Malone, Phone 6781, Box 1529, Tulsa, Okla.

BROWN COUNTY drilling block. Offset and close up leases. Frank Poorman, 316 Taylor St., Fort Worth, Tex.

LEASES AND ROYALTIES—Right in the Big Play in Ward County, along the line of production that is steadily moving from Reagan, Upton and Crane Counties, towards Winkler and Artesia. 10 to 640-acre leases, $3 to $7.50 per acre; 20 to 640-acre royalties, 1/64 for $1 per acre. Small leases close to drilling or production in Loving and Reeves Counties, $12.50 per acre. 2,500-acre permit in Lea County, New Mexico, $2.00 per acre. 10,000 acre lease in Loving County with fine geology, $2.50 per acre. Am owner. E. L. Stratton, 1604 Fort Worth National Bank Bldg., Fort Worth, Tex.

C. W. REYNOLDS Realty Co., Stratford, Tex., has several attractive leases for sale. Also some fine land in Sherman County, Texas.

LEASES, drilling blocks, royalties, West Texas for sale. Green & Hines, Box 1303, Abilene, Tex.

DRILLING blocks bought and sold. Chaffee & Co., 500 Equity Bldg., Oklahoma City, Okla.

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10 yr. Oil & Gas Leases, low rental. Cheap land & Royalties
R. T. Parkin, Box 624, Tucumcari, N. M.

FOR LEASE—10 acres Pottawatomie County, Section 18-7-5. Write Mrs. Genin, 416 Elmwood Ave., Elmwood Place, Ohio.

AMARILLO PANHANDLE OIL FIELD
Underwriter Brainard Ranch oil and gas leases, 25,000 acres in Hutchinson County. Hutchinson County is the major producing area. New 5-year leases from 20 acres to 160 acres. Bought right, can sell at reasonable price per acre. Write for map and prices. I have handled, as underwriter, over 60,000 acres in the field on which over 80 wells are now drilling or producing. Ed R. Mayer, Amarillo Hotel Bldg., P. O. Box 1186, Amarillo, Tex.

LEASES—PRODUCTION

LAREDO
Three gas lines are now taking gas from this district. I have some attractive buys in oil and gas properties—leases, royalties, drilling blocks and wildcat acreage.
M. ELDER & CO.,
Hamilton Hotel, Laredo, Tex.

FOR SALE—Selected oil and gas leases adjoining producing and drilling leases in Barren County, Kentucky. Prices right. L. W. Preston, Glasgow, Ky.

HAVE SEVERAL pieces of flush and settled production for sale in Oklahoma and Wichita Falls districts. Prices reasonable and terms can be arranged if necessary. P. O. Box 1144, Dallas, Tex.

NEW OIL FIELD. Shallow drilling, one well standing full of oil, one well now drilling, several new well locations made. Will sell a few leases at $3 to $5 per acre. P. O. Box 96, Bossier City, La.

DRILLING BLOCK secured on approved acreage and well supervised; no bonus; we keep some acreage as fee. Nicolle, Petroleum Geologists and Operators, Box 1720, Fort Worth, Tex.

"IN THE TREND"
Southeastern New Mexico and west Texas counties — Lea, Eddy, Chaves, Gaines, Andrews, Winkler, Loving, Ward, Culberson and Pecos Counties, oil and gas leases, royalties and drilling blocks. We buy and sell. F. S. Blackmar, P. O. Box 541, Roswell, N. Mex.

60- ACRE Oil & Gas lease, SE¼-NE¼; & S½-NE¼-NE¼; Sec. 20, Twp. 4 N., R. 6E. Pontotoc County; less than two miles to Dixie deep test in Sec. 10-4-6. Lease to run nearly 10 years; $25.00 per acre. O. L. Parker, Box 406, Ada, Okla.

OIL LANDS
FOR CORPORATIONS
OR
INDIVIDUAL INVESTORS
Texas acreage in large or small blocks close to activity of major companies. These tracts, located on Marathon Fold are bargains, bought right and will be sold right. State your wants and secure protection while possible. Address—Owner, S. H. Jaques, 29 Janet Road, Wollaston, Massachusetts.

A PRODUCER of Pa. and Ky. oil (can give good references) desires to sell ½ working interest in 1 to 12 tests located near production or on good structure. Cost of tests at less than ½ of $2,000. Will only answer parties with good references. Ernest Porter, East Brady, Pa., or Monticello, Ky.

FOR SALE—Oil & gas lease or drilling contract on 450 acres in Sec. 1, T. 3N, R. 5W, in Grady County, Okla. Make me an offer. J. Mazur, 1831 Evergreen Ave., Chicago, Ill.

FOR SALE—845 acre lease, east of famous Fry Pool, Brown County, Tex. Big bargain for parties who mean business. Address No. 307 Hodges Street, Ranger, Texas.

I OWN 80 acres in fee near Benton, Butler County, Kansas. Will lease. One mile North from production. Address John S. McKibbin, 3613 Cleveland Ave., Kansas City, Mo.

6,800 ACRES South-West Texas. Shallow production on land. Five or ten year paid up lease or sale ⅞ mineral with surface fee. Exceptionally low prices. O. M. Kendall, P. O. Box 1325, Houston, Tex.

FOR SEMINOLE and Pottawatomie County leases & royalties, write or wire Brown Brothers and Company, Seminole, Oklahoma, and Shawnee, Oklahoma.

IF YOU WANT TO BUY
Oil leases, royalties, acreage in fee, or a drilling contract, anywhere in the Big Bend district of Texas, write or wire.
JOHN CHRISTIE & CO.
Investment Brokers
Alpine, Tex.

OIL OPERATORS NOTICE—Drilling blocks, protection acreage or royalties in Mississippi or Alabama. Correspondence solicited. Mississippi Oil Exchange, Amory, Miss.

LEASES—PRODUCTION

OKLAHOMA BARGAIN
Prospectice Oil and Mineral Land in Fee
$5.50 Per Acre
In southeastern Oklahoma a well equipped ranch containing 8,000 acres. Grass and timber land. 400 acres creek bottom land that could be highly cultivated. Grazes from 1,500 to 2,000 head of cattle. All fenced and cross-fenced. Large ranch home with several small houses and barns. Three miles from railroad town. On good road just off Oklahoma State Highway. Pretty, clear creek, fed by springs, flows through center of ranch. Game fish in creek. A real buy if you have the money to handle it. Three-fourths of the counties of the state of Oklahoma are now producing either oil, gas or minerals. This particular land has good opportunity for either or both. A good ranch. Good hunting and fishing. Good rainfall. A good buy. Answer if you are interested and can handle.
PATTERSON INVESTMENT CO.
301-3 Fidelity National Bank Bldg.,
Oklahoma City, Okla.

FOR SALE—Acreage in Richland Parish, Louisiana, Field. Take advantage of great opportunity offered in buying land in Richland Parish Field where, should you miss oil or gas, land is worth price as farm land. W. T. Pitts, The Land Man, Indianola, Miss.

NOW is the time to buy cheap, well-located leases, drilling blocks, royalties and mineral fee in west Texas. I can supply your wants. Have had four years' experience in this area in land department for major companies and two years for myself.
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515 Rust Bldg., San Angelo, Tex.

HAVE large and small blocks oil leases in Texas, in localities where drilling starts soon. Price 10c per acre and up. S. S. Osborn, Metropolitan Hotel, Fort Worth, Tex.

OIL LEASES—Drilling blocks, royalties, lands in fee in Callahan and adjoining counties. Clyde Realty Co., Clyde, Texas.

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A. W. RICHARDS
Center, Kentucky.

SOUTHWEST TEXAS — WINKLER, Loving, Reeves, Ward, Pecos, Culberson Counties.
Drilling blocks. Leases. Royalties. Ranches in fee.
H. F. Anthony, Pecos, Tex.

WRITE for my state of Texas oil map free. Oil leases exclusively. Reference, Mercantile Agencies.
C. W. WEBSTER
W. T. Waggoner Bldg.
Fort Worth, Tex.

CUBA—Producers, investigate our oil resources! Present production sells to local refinery at $5 per barrel. Offer large drilling block with structure and seeps. Adjoins production. Promotion propositions not wanted. R. G. Lane, P. O. Box 1066, Havana, Cuba.

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Only 13 Dry Holes
In the Bradford, Pa., flood district last year. Prices right. Get full information.
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FOR LEASE—Large drilling block for a test well in Butler County, Kansas. Good structure and in line of production. D. A. Bisagno, Augusta, Kansas.

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LEASES—PRODUCTION

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973 acres full ⅞ths Oil & Gas Leases in Texas Panhandle. 600 acres in 12 leases, wildcat and semi-wildcat in Dallam, Hartley, Moore, Ochiltree, Roberts, Hemphill, Wheeler and Gray Counties. All in good play offering odds daily.
373 acres solid in Secs. 179, 181 & 182, Block B-2, H. & G. N., Gray County. This is conceded positive to produce big wet gas and conceded apparently sure for oil. Major companies concede it certain to yield about 400 barrels casinghead gasoline daily from wet gas—gross daily income $3,500 in addition to all oil produced.
Have let cash drilling contract and need limited amount to complete financing well on this 373 acres. To get this I will assign and convey undivided interests with abstract of title. Buyers sign division orders and get checks direct for oil, gas and casinghead gasoline produced. Will sell 1/128th in all of my leases for $1170; 1/256th for $585; 1/500th for $300; 1/1000 for $150, record titles. Limited amount offered.
Have absolute proof of every statement. All leases fully paid for. Can give best of bank references etc. State amount you can invest. Give address and telephone number. References preferred to avoid curosity seekers. Will meet you anywhere by appointment. Address inquiries to 1005 Colcord Bldg., Oklahoma City, Oklahoma.

FOR SALE—440 acre lease with 5 shallow producing oil and gas wells. Price $7,000. John F. Hess, Humboldt, Kans.

FOR SALE—Seminole crude F. O. B. Cars at Seminole. Posted price plus nominal loading charges. Address P. O. Box 2115, Tulsa, Okla.

LOVING COUNTY TEXAS. Will sell lease and fee or lease only on all or part hundred and sixty acres close to flowing oil well. Write Geo. Young, Suite 515, Hartford Bldg., Chicago, Ill.

FOR SALE—Leases and production in Warren, Allen and Barren Counties. Have leases in Barren County joining producing leases and some within half-mile to 1 mile of production. W. P. Harley, Bowling Green, Ky.

BLOCKS taken for bonafide operators in Miami and Franklin County. Production for sale. Clarence H. Chambers, Osawatomie, Kansas.

FOR SALE or lease, NW ¼ of Section 10, Township 9n, Range 79w, Jackson County, Colorado. Clear title and United States patent. 1½ miles west of the Continental Oil Co. well.
H. S. EVERTS, Owner
731 W. Broadway, San Diego, Calif.

FOR SALE—Oil leases in Cimarron, Texas. Beaver and Woods counties. Orbee Lease Co., 1114 Colcord, Bldg., Oklahoma City, Okla.

200 ACRES of land in McCurtain County Okla., $5 per acre, oil and mineral rights included, low tax rate, title certificate given with deed. 80 acres in Southeast part of county Red River bottom land $15 per acre. Also 11,000 acres, no oil or mineral lease make me best offer. P. T. Calahan, Idabel, Oklahoma.

INCORPORATIONS

CHARTERS — Deleware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE incorporators. Charters fees small, forms. Charles G. Guyer, 901 Orange St., Wilmington, Del.

ADDRESSES WANTED

W. H. BENTLEY get in touch with Gibson, Lovett & Lovett, Corsicana, Tex.

WANTED—The address of Harry Rhodabarger. Address Box 1122, Henryetta, Okla.

Chicago Markets Better, Prices Firmer

Flat Quotation of 7 Cents by Close of Month Predicted. Export Inquiries Reported

By J. B. Waldo

CHICAGO, Mar. 28.—The gasoline demand began this week in a way that

leads others to expect a better business than for several weeks preceding. The buying is more general and, while there is no rushing to place orders, more business is being received, and most dealers are anticipating their wants to some extent, if not actually buying for storage. There was a lot of large buying last week, one refiner alone booking a total of 1,000 cars to large distributors for stock. Prices are more firm, only a little U. S. Motor gasoline being available at any price under 6¾ cents. Several refiners are holding for 7 cents, and one or more are still selling a little gasoline at 6½ cents, but the active price on Monday was at the three-quarters, with much firmness in the present situation and a flat 7-cent price generally predicted by the close of the month. There was only a light demand for the higher tests, which were slightly stronger than at the close of last week.

Export Inquiries

There are a number of export inquiries out, but several refiners have turned down the offers because of the price or the specifications. The actual export buying seems to have been largely confined to North Texas refiners.

Kerosene was practically unchanged in Monday's market. Gas oil was more freely offered at 3 cents by several refiners, with little demand from any source at the beginning of this week.

Fuel oil continued quiet, but while there are some offers of heavy gravities below the current market, there is little general weakening, and prices are maintained better than has been expected by many partly on account of the nearness of the beginning of the strike of the mines of soft coal. Distributors report that the demand is materially ahead of last year, about 25 per cent in actual consumption.

Stocking Up

A very important factor in the gasoline situation right now is the quantity that has been stocked in anticipation of a larger consumption later on and higher refinery prices as the result. There has been a good deal of buying for this purpose and it begins to be felt that the larger dealers are pretty well cared for over a considerable period, unless there is an unseasonably large consumption. Many dealers cannot help feeling that the Middle West at least and probably the entire country is going to have an early and very favorable spring season with good roads weeks before the usual dates and probably a May or even June rate of consumption during April. The weather conditions which surround the dealers in many parts suggest this and they are influenced to some extent in making their early purchases.

At the prices which have been quoted recently to large buyers for sizeable orders it would have been folly not to buy. Although there is a good deal of hesitancy and uncertainty felt at present by most of the trade it would take nothing short of a national calamity to make purchases of U. S. Motor gasoline at around 6 cents unprofitable. There have been some who were deterred by financial reasons from stocking more largely than they did. A man of large business interests located in Omaha was in the city last week and he described the condition of those sections that depend almost entirely on the agricultural demand as far from good. Dealers in these sections, be their commodity oil or any other necessity, are asked to carry large credits which is more easily done by the large companies with their great financial resources than by the smaller dealers. But it is the very general opinion here that the country supplies of motor fuel have been greatly added to recently and are quite considerable. Several of the larger dealers in this territory have informed their regular sources of supply that they were out of the market for gasoline and kerosene for some time. The smaller dealers seldom carry stocks for more than a brief period and those with contracts depend on their monthly allotments for the bulk of their supplies so that a rather quiet market so far as the spot demand is rather looked for, unless there is a decided advance in the refinery markets to stimulate further buying.

Better Feeling

There is a sense of better conditions in the present situation due to a feeling that the near approach of a larger demand due to increased consumption offsets the unfavorable element of large supplies. These have been somewhat reduced by the recent important sales mentioned above. Several refiner representatives have stated to the writer that they were at present pretty well sold up. One or two have resorted to the practice of advancing their price well above the general market quotations to deter buying. Their idea seems to be that by advancing their quotation a quarter or half cent above the asking prices of their competitors they strengthen the market and get a little advertising for themselves. Several buyers commenting on this action have said that in their opinion these refiners would make a better impression if, instead of stating to possible buyers that their prices are so much, and naming a higher price, they would simply say that they were sold up for the time being and were not quoting for early delivery. This would do as much to give a stronger tone to the market without giving the impression that their prices were at times excessive by comparison.

The bulk demand during last week was for the U. S. Motor grade. Although April 1 is the date when the 56-58 450 gravity is supposedly available on contracts there is no demand for that gravity in this market and any quotations are entirely nominal. The higher tests were strengthened towards the close of last week by a little export buying chiefly, so far as this market was favored, of the 64-66 375 gravity and prices for the higher tests advanced from the low point of the week one-fourth cent. The demand for the U. S. Motor gasoline was active during Monday and Tuesday of last week and then dropped off a little but came back quite strong on Friday and was holding out well at the close of the week. Many predicted that April 1 would see a 7-cent market or better for spot business. Some business was done over April at that price although generally there was no desire shown to sell for periods of more than 10 days to two weeks in advance. Gasoline moved in considerable quantities last week, a much larger volume of business being done than for several weeks preceding.

Antiknock Demand

The demand for the special antiknock gasoline is still going strong but several good jobbers have told the writer that they could see no advantage in carrying two grades and should cut out the knockless and sell as their regular service station material a cracked gasoline at the regular station price. The manufacturers of ethyl fluid have announced an impressive advertising campaign, apparently having so extended the sources of supply of the ethyl fluid and of the gasoline blended with this material that they were able to supply a larger part of the country. Of course, this makes no real difference in the Standard of Indiana territory where the Standard company has the exclusive sale of ethyl gasoline for several years to come. With this campaign on there will be a demand for a grade of gasoline to compete with it. It is reported that the makers of the Hudson and Essex cars have recommended ethyl gasoline to the owners of these cars. This is bound to bring about some adverse criticism unless the makers of these cars make a strong denial of the statement as to their advocacy of this gasoline. Many dealers have found in the 68-70 350-60 gravity a motor fuel that they could sell in competition with ethyl gasoline and other knockless motor fuels. Curiously enough, right now there is absolutely no demand for this grade of gasoline and the market here is now only 1½ cents at most over the current price of U. S. Motor gasoline. The Johnson Oil & Refining Co. has begun offering at its bulk and service stations a knockless gasoline under the name of "Improved" gasoline at the regular station price which is in line with the idea of many of the larger jobbers and of some refiners. The Texas Company and the Marland Refining Co. being among those that make no extra charge for antiknock gasoline. Some others are giving their dealers the option of an antiknock or a regular gasoline.

Prices Strengthened

The price situation strengthened during last week and was most firm at the close on Saturday when there was practically no gasoline of the U. S. Motor grade available under 6½ cents to the trade with many refiners and marketers holding for 6¾ cents and refiners selling for resale holding for 6½ cents. An average range of prices at the close of Saturday was 6¾ cents for U. S. Motor gasoline, 7 cents for 60-62 400, 7¾ cents for 64-66 375 and 8¼ cents for 68-70 360. The lowest prices quoted during the past week were for Ohio delivery where it seemed ethical to cut prices while unethical to make the same prices out of Group 3 for delivery in states of the Indiana territory. One very large distributor located in a northern Ohio city actually had quotations from three refiners with a price of 5¾ cents, Group 3 basis, and bought several hundred cars at that or about that price. The extreme competition that has developed during the past year in Ohio apparently reached its height in these quotations to this distributor.

Kerosene Dragging

Kerosene is dragging along with only a fair demand at best and prices favoring buyers even at the quotations named. One of the plants in the Chicago district was offering marketers its surplus supply, an unusual thing for this concern to do. It only appeals to the marketing and local jobbing trade for orders when it has an unwieldly surplus. The price named to several was 5 cents but it was intimated that for actual business ready to be placed it might be able to do a shade better. Talking with the representative of this concern a large local dealer said, in response to the charge that the dealers were crowding the refiners too hard for low prices, that he, the dealer, did not care so much what the price was as he bought as cheaply as his competitors. Said he, "If my competitor buys half a cent lower than I do he is in position to do more for his customers than I can and might take some of my business away from me." The 41-43 gravity water white kerosene was available for resale at 3½ cents and was offered at 4¾ to 5 cents with an occasional shading of the lowest price. The country dealers do not seem to expect as large a demand for kerosene on the farms as developed last year during the spring season but some believe that were the price lower to the consumer more would be sold.

Distillates Weak

Distillates have just about dropped out of the oil business at present and a possible buyer could pretty nearly name his own price. Sellers were quoting 3¾ cents for a 38-40 straw and 3½ cents for a 36-38 dark distillate with only a very few orders placed. Supplies in distributors' tanks here are very ample and many will have considerable quantities to carry over and more if they take in all that is due on contracts. The weakness in this market is brought about by the lack of demand due to limited consumption. In this vicinity heat is needed in the homes only nights and mornings right now.

Gas Oil Uncertain

Gas oil is in a very uncertain position and prices are slipping right along. Some distress oil is being offered, some cars of a 32-36 gas oil straw color and low flash at 3¼ cents while the dark industrial gas oil with U. G. I. specifications is purchasable at 3 to 3⅛ cents. Day-by-day reports are received from this and that refiner that they are not operating their cracking stills. There is consequently very little demand from refiners of gas oil and a larger supply available to other users. The utility companies, with few or no exceptions, are drawing on their present supplies and holding back from ordering. The views of the buyers for these gas plants are being constantly revised downward and their viewpoint is of a larger supply and a lower cost to them. The industrial demand is light and the use by domestic oil burners gradually ceasing so that the market is uncertain although some refiners have stated that they would prefer to hold their gas oil to selling at the present market.

Fuel Oil Easier

Fuel oil is also being knocked about and the heavier grades are easy and lower. The industrial buyer of quantities has a good opportunity right now to decrease his manufacturing costs by buying at some of the recent offerings but so far as can be learned few have taken advantage of these prices. One large buyer in a western city showed salesmen who called on him for business quotations of oil suitable for his use, an 18-20 gravity, a $1 over nine months from April 1 and from another marketer a price of $1.05 over 90 days. One refiner who has a supply of 16-20 fuel oil to move has reduced his quotation in quantities to $1.07½, a decline from the early part of last week of 2½ cents. These prices are below the average of the market and the quotations made by refiners to marketers generally and the makers of these prices are accused of selling the market short but they reflect the viewpoint of many oil men and of practically all the buyers. These claim that with such an abundance of crude at low costs to the refiner and with so many of the refineries operating as skimming plants there is bound to be a large increase in the supply of fuel oil and that there is not going to be any increase in the consumption over last year. The larger industrial buyers are ordering sparingly and carefully. Current quotations in this market show a decline during the past 60 days of 7½ cents on the average on the

24-26 gravity; of 25 cents on a 28-30 gravity and of 5 cents on an 16-28 product. These declines are on the average market prices, not on special quotations for contracts made to large buyers. These show that the market for the heavier oils has nearly held its own so far, the decline being in the higher gravities where premiums for low cold test winter oils are no longer paid. Smackover fuels are a little easier in tone.

Lubs Moving Freely

Lubricating oils are now moving quite freely to the distributors who are stocking up with the summer motor oils. The lubricating demand runs along with less variation than the lighter products but there is always something doing in this market owing to the great competition and the constant effort of some producers of oils and greases to supply something that will take the place of higher-priced products at a lower price and be "just as good." There is also a great deal of competition now from the middle state refiners who are cutting into the business of both the Oklahoma and Pennsylvania producers of lubricating oils. Their prices are favorable and in some cases lower than either the Pennsylvania or Oklahoma sellers care to quote and they seem to be getting the business right now. There is little or nothing new in the industrial demand.

Gasoline Gallonage Grows

The gasoline gallonage is showing a marked improvement generally over this territory. From the southern parts to the extreme north the same report is made both by the larger companies which cover the entire territory and by leading dealers in each part of the territory. With better demand for their merchandise and a more active business there is less talk of the unfavorable conditions. In point of fact no oil dealer has a greater reason for complaint regarding prices and competition than the distributor of any other major product. Mail order houses and chain stores seldom get into the oil business to any extent. The competition from the most part comes from within the industry, not from without. If the larger distributors were habitual price cutters there would be another story but the selling price to the consumer maintained by the chief competitor of the smaller dealers allows such an ample profit under usual conditions that few industries can show such an average record of success among the distributing branches. No one but their own management is responsible for the overbuilding and extravagant management of some of the dealer companies.

The local fuel oil distributors have put into effect a new scale of prices somewhat lower than the same scale during the winter. These prices are for dumps of 400 gallons and carry the usual charge for smaller quantities or for overtime and other extra services. The prices are:

	Cents
18-20 gravity Smackover fuel oil	6½
24-26 gravity refinery fuel oil	7
28-32 gravity refinery fuel oil	7½
32-36 gravity dark gas oil	8¼
34-36 gravity straw gas oil	8½
38-40 gravity furnace oil (distillate)	8½

These prices were announced as effective March 28 but most of the local tank wagon distributors applied them at once, some the 18th.

ETHYL GASOLINE CORP. ANSWERS ALL QUESTIONS

Since the introduction of Ethyl Gasoline, many questions have been asked about it. Among them have been questions relating to public health, to the action of Ethyl Gasoline in the combustion chamber, to its effect on the engine and engine parts.

In a special four-page insert in the advertising pages of this issue, the Ethyl Gasoline Corp. is answering all such questions and reproducing the major contents of its "primer," just published. Copies of the complete "primer" are available without cost on request to the Ethyl Gasoline Corp., 25 Broadway, New York City.

GASOLINE AT BOTTOM IN THE EAST; SERVICE STATION PRICES STEADYING

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Mar. 28.—United States Motor gasoline seems to have been fairly stabilized at around 10½ cents a gallon at Atlantic Coast refineries during the past week. Some offerings have been rumored as low as 9¾ cents, but on a falling market these rumors are discounted.

It is obvious that Mid-Continent gasoline cannot be delivered on the Atlantic Coast at a much lower price than 10½ cents a gallon without incurring loss to the shipper. This 10½-cent quotation represents a lower price, f.o.b. Tulsa, than the existing market, and it is believed Group 3 refiners are able to sell sufficient gasoline to big export and domestic buyers and to their own customers in the Southwest and Middle West at 6¾ cents without dumping their product on the Atlantic Seaboard approximately a cent a gallon below that figure.

It is also quite obvious to marketers here that gasoline prices are now on rock bottom from the viewpoint of profitable business, although the profit is questionable at these levels. The question is asked as to whether refiners will go further in dumping gasoline on the market at still lower levels, at a loss to themselves, despite the pessimistic statements rampant in the trade. There is usually a point at which even refiners hard pressed for cash will hesitate to part with their production, and in some quarters this point in the gasoline market has now been reached.

Service Stations Steady

The decline in gasoline prices here has been in the face of unusually heavy consumption. This consumption has resulted in a steadiness in prices at service stations. There is little evidence of the excessive competition in the retail gasoline trade that was rampant during the overproduction of 1923. The tank wagon situation is comparatively stable on the Atlantic Coast at present. The weakness is chiefly in the market represented by tank car sales to consumers, including the larger trucking companies.

There is considerable California gasoline moving to the Atlantic Coast, despite present price levels. This is due to the fact that some old contracts have not expired. The Standard Oil Co. of New Jersey states that it is not now bringing in California naphtha.

Indications that some important changes are taking place in the eastern retail business is found in reports that the Standard Oil Co. of New York has taken over the large chain of Sobol Brothers service stations in greater New York City, and that the Atlantic Refining Co. has taken over the "Red C" Oil Co. stations in New Jersey. It is also reported that the Standard Oil Co. of New Jersey captured a big retail gasoline contract in the territory of the Atlantic Refining Co., involving the sale of 12,000,000 gallons of gasoline for one year to a large bus company in Philadelphia. This contract is being supplied by the Jersey company's distributing station at Camden, N. J., across the river from Philadelphia.

Fuel Oil Firm

The fuel oil market on the Atlantic Coast continues to show a contrast with conditions in the gasoline and kerosene markets. The price of both Diesel oil and bunker fuel oil are firm. This firmness is believed to reflect many factors, including the relatively low heavy crude oil production in the United States, the decline in heavy crude output in Mexico, the steadiness in California oil prices and increasing demand.

During the week ended March 23, receipts of Mexican oil at Atlantic ports fell to as low a figure as 6,000 bbls. a day, the smallest weekly average in years. Atlantic Coast fuel oil marketers are now filling their distributing tanks with fuel oil from the Gulf Coast of the United States, California and Venezuela. During the week ended March 23 the receipts of oil from California were 124,000 bbls. a day and from South America 68,000 bbls. This combined average of 192,000 bbls. a day represents in part oil formerly imported from Mexico.

Whether fuel oil will continue to remain firm in the face of the outlook for declining "cracking" operations is a question. In some quarters it is believed fuel oil prices will soon slip to a somewhat lower level. Diesel oil, now $2.50 a barrel at New York, not including lighterage charge of 5½ cents a barrel, is selling at approximately twice the cost of 36 gravity Mid-Continent crude oil and more than twice the cost of Gulf Coast crude at the well. Bunker fuel oil is selling for considerably more than the cost of crude at the well.

Kerosene Unchanged

The kerosene market seems to have stopped declining temporarily. Competition in some sections is said to be becoming less keen, and there are indications that prices may not drop further for a while. The return of colder weather has boosted kerosene and furnace oil sales somewhat. The export kerosene market is also stronger.

Lubricating Oil

Lubricating oils are firm. Cylinder oils are unchanged in price but are moving much more briskly at current quotations. Red and pale paraffin oils are still somewhat heavy.

The paraffin wax market is improving. With prices still unchanged, the movement into domestic and export consumption is much better. Export shipments of refined wax are picking up considerably.

Petrolatums are dull after showing temporary activity. Prices continue unchanged.

Exports

Improvement is noted in many departments of the export trade. Bulk shipments are somewhat larger, but the greatest encouragement is found in the market for cased goods, with Brazil and Australia leading buyers.

One department of the export trade that is giving considerable encouragement is refined wax, exports of which during the week ended March 23 were estimated at 1,512,940 pounds, against 829,400 pounds the week ended March 16, and 336,380 pounds during the week ended March 9.

In the week ended March 23 there was a bulk shipment of liquid asphalt aggregating 866,208 gallons.

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks (all figures in gallons unless otherwise noted):

	Week Ended		
Gasoline:	Mar. 23	Mar. 16	Mar. 9
Bulk	1,815,744	.....	478,025
Cases	1,199,500	1,411,520	1,353,240
Kerosene:			
Bulk	1,817,088	.....	724,567
Cases	806,980	1,458,920	2,933,480
Lubricating oil:			
Bulk	1,668,366	.....	.....
Barrels	346,100	27,100	507,300
Cases	546,260	327,240	263,940
Lubricating grease:			
Barrels (lbs.)	.....	631,350	.....
Paraffin wax:			
Bags (lbs.)	1,512,940	829,400	336,380
Barrels (lbs.)	.....	.....	280,250
Petroleum asphalt:			
Bulk	866,208	.....	.....

The foregoing figures include shipments of 500 bbls., 1,000 cases, or more.

Tanker Market

Tanker rates are declining somewhat. Activity is restricted, so far as making fixtures is concerned. Most business is for forward loading, as far ahead as July.

Oil Receipts

Receipts of crude and refined oil at Atlantic ports for the week ended March 23 were estimated at 4,031,000 bbls., a daily average of 576,000 bbls. This compares with a total of 3,999,000 bbls., or 571,000 bbls. a day, the preceding week.

Receipts from the Gulf Coast have been the feature. The daily average for the week ended March 23 was 378,000 bbls. a day; for the week ended March 16 the average was 363,000 bbls. and the week before that, 411,000 bbls. a day.

Receipts from the Pacific Coast also are holding up to high levels. The daily average for the week past was 124,000 bbls.

Imports from Mexico, as pointed out before, fell to 6,000 bbls. a day.

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week-Ended		
	Mar. 23	Mar. 16	Mar. 9
Gulf Coast	378,000	363,000	411,000
Pacific Coast	124,000	78,000	126,000
Mexico	6,000	67,000	36,000
South America	68,000	63,000	97,000
Total	576,000	571,000	670,000

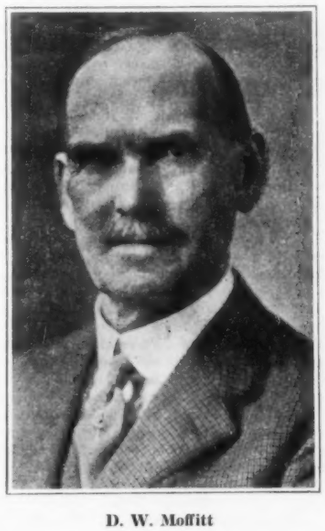
Daily Averages by Months

1927:	Gulf	Pacific	Mexico	S. Am.	Total
Feb.	379,000	89,000	40,000	48,000	556,000
Jan.	362,000	73,000	49,000	61,000	545,000
1926:					
Dec.	363,000	57,000	49,000	61,000	530,000
Nov.	335,000	62,000	56,000	40,000	493,000
Oct.	270,000	71,000	61,000	43,000	445,000
Sept.	299,000	98,000	63,000	58,000	518,000
Aug.	320,000	61,000	71,000	46,000	498,000
July	360,000	66,000	115,000	36,000	577,000
June	396,000	104,000	117,000	18,000	635,000
May	318,000	66,000	114,000	25,000	523,000
April	326,000	92,000	126,000	20,000	564,000
Mar.	317,000	97,000	152,000	26,000	592,000

The foregoing figures are based on the carrying capacity of incoming oil-laden tankers.

SALES DEPARTMENT IN MOFFITT'S CHARGE

D. W. Moffitt, vice president of the Mid-Continent Petroleum Corp., will be in general charge of the sales department of the company, with offices in Tulsa, according to an announcement by the Cosden Sales Corp., the sales organization of the Mid-Continent corporation. The appointment of Mr. Moffitt follows the recent resignation of John M. Carson as general sales manager of the Cosden Sales Corp., with offices in Chicago. Mr. Carson resigned to become president and general manager of the Atlas Petroleum Corp.



D. W. Moffitt

Effective April 1, the shipping and accounting departments of the Cosden Sales Corp. from Chicago will be moved to the Cosden Building, Tulsa, the location of the general offices of the Mid-Continent Petroleum Corp. A district office will be maintained in Chicago in charge of Walter J. Herr.

Mr. Moffitt also has general charge of the company manufacturing operations.

Impure Water Factor in Corrosion

Treatment for Boilers and Engine Jackets Not the Only Equipment to Consider at Gasoline Plants

By Otto Peters*
Superintendent of Brooks-Hanlon Gasoline Corp., Breckenridge.

When water treatment is mentioned to the gasoline plant operator the idea instantly concentrates on the harmful effects of impure water on the boiler and on the water jackets of engine power cylinders. The corrosion of plant piping exposed to the impure water is probably accepted as a secondary matter. The gasoline plant may derive its supply of water from a creek into which empties all the drainage from slush pits, waste oil, salt water dams and incidentally all refuse water and acids from the plant. Particularly during the rainy season is this water affected so that water treatment depends upon the kind of water it may be at the time of being treated.

Above all things water should be carefully analyzed before treatment is adopted. In our practice of gasoline plant operation we are beginning to realize that something must be done to eliminate excessive upkeep costs due to the destructive effects of impure water. Water treatment is not to be confused with boiler compounds. There are scale preventatives and scale removers and where these may be adopted due to apparent high cost of water treating, their use is limited for specific purposes and indications are that ultimately the entire water supply for the plant will be treated.

Water Classification

Water may be classified by either of two methods: First, by its chemical composition; second, by its effect in use.

The second is manifestly what is wanted by the master mechanic or superintendent. The following may be placed in the first class: (a) Alkaline waters; (b) nonalkaline, bad and good.

In the second class may be placed: (a) Water causing foaming and corrosion, but nonincrusting; (b) hard or incrusting; (c) soft, nonalkaline, and good.

These two classes are related as follows: A of Class 1 will produce trouble in A of Class 2; B of Class 1, the bad nonalkaline, would be B of Class 2; C of Class 2 soft water, would include water having little mineral impurities of any kind.

In making analysis all ingredients are grouped broadly under two heads, incrusting and nonincrusting. Under the former are put such salts as are thrown out of solution by heat, and under the latter, those which do not precipitate until great concentration occurs.

The hardness of water may be temporary, permanent or both. Temporary hardness is caused by calcium and magnesium carbonates which are held in solution by the excess of carbon dioxide in the water. Boiling the water drives out the carbon dioxide and calcium and magnesium carbonates are thereby precipitated. Permanent hardness is usually caused by magnesium chloride or calcium sulphate, which is not precipitated by boiling, the latter, however, can be precipitated out of boiler feed water by heating to 240 degrees Fahrenheit, which renders it insoluble.

Water Tests

Water may be classified as follows: 1 to 10 grains per gallon, soft water; 10 to 20 grains per gallon, moderately hard water; 20 to 50 grains per gallon, very hard water.

In testing, the standard soap solution is used and it is made as follows: Dissolve 13 grams of pure castile soap, or sodium oleate, in 500 c.c. of alcohol and 500 c.c. of water. Now it becomes necessary to standardize so that 1 c.c. will be equivalent to 0.001 gram of calcium carbonate. In order to effect this, 12 c.c. of standard hard water is run into 250 c.c. flask and diluted to 58.3 c.c. with distilled water, soap solution being run in 1 c.c. at a time, shaking after each addition of soap solution until a permanent lather is obtained, lasting five minutes, which should be 13 c.c. of soap solution. Therefore 1 c.c. of soap solution equals 1 degree of hardness.

Water Troubles

Troubles due to water, their prevention and cures, could be arranged as follows:

TROUBLE:	CAUSE:	CURE:
	Sediment, mud, clay, etc., readily soluble salts.	Filtration Blowing off
Incrustation—	Bicarbonates of magnesium Lime, iron	Heating feed and precipitate, caustic soda; lime, magnesium.
	Organic matter Sulphate of lime	Organic acids are neutralized by soda ash, Berium chloride.
TROUBLE:	CAUSE:	CURE:
	Organic matter	Precipitate with alum. Precipitate with ferric chloride and filter.
	Grease	Lime Soda ash and filter
Corrosion—	Chlorides of sulphates of magnesium.	Soda ash
	Sugars Acids	Soda ash
	Dissolve carbonic acid and oxygen.	Lime, caustic soda and heating
	Electrolitic action	Zinc plates (only in the absence of oxygen).
Priming—	Sewerage	Precipitate with alum or ferric chloride and filter.
	Alkalies	Heating feed and precipitate.
	Carbonates of soda in large quantities	Barium chloride.

Thinking it might interest you to know of a plant treating water, I submit a brief word description. This plant has seen many years of service, is economical and practically fool-proof.

The plant equipment consists of four 1,200-bbl. wooden tanks, two of which are for storage of untreated water and two for the treated water. The difference between the two kinds of water is strikingly apparent. One is muddy looking and the other is clean and has the same greenish color as the ocean water. Two Dean triplex 7 by 10 water pumps, each directly connected to a three phase 40-horsepower motor, are used to pump the treated water to the different points of delivery. Two turbines, each driven by a three phase 20-horsepower motor, are used to deliver water from the creek to the water filter, also used for flushing of the water strainer and are so connected that in an emergency they replace the triplex pumps.

There is one steel tank 4 feet high and 8 feet in diameter which is used as a mixing tank for the chemicals and in it the solution is stirred by hand through the medium of spur gears attached to a paddle; stirring is also accomplished by circulation of the solution by means of a centrifugal pump which is motor driven. The filterer has a capacity of treating 9,000 gallons of water per hour and it consists of a steel riveted tank 40 feet high and 12 feet in diameter, and in the center of it is a smaller tank, 40 feet high, but 5 feet in diameter. The top of both tanks is open and on tiers across the top is assembled a narrow steel box 10 feet high, 6 feet long and 16 inches wide. This tank receives the water to be treated and through an overflow pipe it also operates a tripping device. To one side is placed another steel tank 4 feet high and 8 feet in diameter, which is called the chemical tank; alongside of it is a tripping device which controls its outlet, and above this chemical tank is a small wooden tank in which alum is mixed.

Treating Solution

The process of treating consists of diluting in the mixed tank 120 pounds of lime with 150 pounds of soda ash. This solution is then pumped by means of the centrifugal pump up into the chemical tank on top of the filterer. Also 15 bbls. of alum is diluted with water to make a volume of about 4 bbls. of mixture which is fed into the chemical tank at a rate taking 24 hours. The chemical tank contents are continuously stirred automatically by a paddle attached to spur gears actuated by a paddle wheel extended on a rod into the water receiving box in which the water enters at the top so that in falling it revolves the paddle wheel. The water to be treated passes from the bottom of the receiving box into the top of 5-foot diameter tank in center of filter and as the water enters it comes in contact with the lime, soda ash and alum solution, leaving the chemical tank, which is fed to the water by means of a very ingenious tripping device which is made of an iron box having suspended two brackets, one on each side of a ratchet arrangement so arranged that as the bucket is filled with water through the overflow line from water receiving box it trips and operates the ratchet which is hooked to a lever control inside the chemical tank. This is a slotted pipe used as outlet nipple from the chemical tank, so that where the buckets are set to fill with water within specified time limits, the stroke of the ratchet is either lengthended or shortened, in that way lowering the outlet nipple in the chemical tank so that many drops of chemical solution are fed to the water every so many minutes. The water, after coming in contact with the chemical solution, passes through a suspended strainer which consists of several hundred minute holes covered by layers of gravel and sand so that in passing through the strainer the water is cleansed from chemicals. The strainer has to be cleaned and this is done by flushing it with water every 12 hours.

*Paper presented at Ranger meeting of Association of Natural Gasoline Manufacturers, March 22.

PROBLEMS IN MEASURING GAS FROM WELL TO GASOLINE PLANT

By D. A. Sillers*
Superintendent Gas Measurement, Lone Star Gas Co., Dallas, Tex.

This subject should naturally begin with the field meter stations. Here we have a choice of flange or pipe connections. In my opinion the flange connections are the most practical, as they are already tapped, and a correct installation is assured. In making pipe connections there is too much chance of variation in the connection itself that might lead to errors. Extensions of a threaded nipple or bubbles of welding metal or burrs from cutting the pipe at the point of the connection may very well cause a pitot tube effect which may lead to an error in either direction. The flange connections also records the maximum differential produced and less loss of vacuum results.

There are many installations with too short a length of pipe before and after the flange. Tests have shown that one elbow on the inlet of a meter does not materially affect the accuracy, but that two elbows introduce swirls which result in measurement that is low. I would recommend as long a length of pipe as is practical on the inlet to the flange, but not less than 20 diameters, or if straightening vanes are used, not less than 10 diameters. On the outlet I would recommend 10 diameters for flange connections and 16 diameters for pipe connections.

Leakage in the meter piping is not generally considered a great source of error, but in using a wide range meter, it was noticed that the 20-inch and the 100-inch gauges often showed different readings. In practically every case we have been able to eliminate this by eliminating the leaks from our meter piping, and I believe that this piping should be carefully gone over and tested for leaks.

Type of Meter

The orifice meters with the 20-inch range are now very generally used for low pressure and vacuum work. However, there are a number of companies that still use 100-inch meters for this service. Where the static pressure is very low—by this I mean a high vacuum—the differential drop may very easily be more than 50 per cent of the inlet absolute pressure. This means that the gas has reached it critical velocity and that a greater differential does not result in a greater flow. The result is an erroneously high differential, which indicates more gas than is actually passing. On page 132 of "Measurement of Gas and Liquids" by Henry P. Westcott, a very good discussion of this problem is given. In this discussion, it is recommended that the reading on the differential gauge in inches of water should seldom exceed twice the value of the static pressure in pounds per square inch absolute.

Most companies have meter men that are familiar with the care and repair of the meter itself. However, some companies consider that they are getting good measurement when they get charts from a meter showing a very smooth differential line. This is very often due to a meter with a tight bearing or stuffing box, and is indicative of very poor measurement. Where wells flow by heads, an erratic or "sunflower" chart is to be expected, as the meter can only record the way in which the gas passes through the line. Where this pulsation is caused by liquid in the lines, it can be eliminated by placing drips at low places in the lines. Placing a drip just before the orifice meter does not eliminate this trouble. In my experience, putting dampening devices to restrict the flow of the mercury in the meter gives a sluggish meter that is hard to zero, and in general results in an inaccurate meter.

Most gasoline plans have a master meter which is checked against the total of the well meters. Consideration must always be given to the fact that all leakage in vacuum lines results in air mixed with the gas, which will make the plant meter read high. There may easily be 10 per cent air in the gas as it reaches the

(Continued on Page 169)

*Paper read at Ranger, Tex., meeting of Association of Natural Gasoline Manufacturers, March 22, 1927.

MEASUREMENT OF GAS FROM WELL TO PLANT

(Continued from Page 168)

plant and this should be taken into consideration when checking against the field meters.

Pulsation Problem

The plant meter being located quite close to the suction of the compressors is also affected by pulsation which may make the meter read considerably high or low. Pulsation has proved one of the most baffling problems to gas measurement. Lone Star Gas Co. has done a great deal of experimental work along this line, and we hope to have some solution for this problem in the near future. The best we have been able to do so far has been to put an orifice plate, the same size as that used in the meter, as close as possible to the compressors. This partially eliminates the error, but the resulting drop in pressure make it impractical in connection with measuring gas under vacuum. Our tests have shown that putting restrictions in the meter piping is of no value and that putting reservoirs in the meter piping increases the air. When further results are obtained, they will be made known to the industry.

A very considerable source of error in measuring gas is due to using wrong or inaccurate coefficients. We stamp all our orifice plates with a serial number, the last three numbers of which show the size of the plate. When an orifice plate is changed, a notice card is sent to the office, showing the number of the plate removed and that of the new plate. A new chart is put on the meter at the time the plate is changed, and a notation of the plate change is also made on the chart. In this way we guard against using a coefficient for a 2-inch plate when there is a 1-inch plate actually in the line. One of the most important factors in getting correct measurement is using the right specific gravity correction factor. Roughly, an error of one point in the second place in the gravity used results in about 1 per cent error in measurement. The gravity balance is now rapidly displacing the bottle for testing gravities. The gravity bottle is very erratic and almost always gives a low gravity resulting in a high correcting factor, which means that you are paying for more gas than you are getting. Gravity balances can now be purchased which are designed to give accurate results when used by an operator of average ability.

Gravity at Plant Meter

Again in checking the plant meter against the field meters, there is a real problem in arriving at the proper gravity to use for the plant meter. We have recording gravitometer charts from various plants in west Texas showing variations of 10 or more points in the second place during a single day. Probably the most practical method of arriving at a gravity correcting factor for the plant meter is to multiply the production of each well by the gravity correcting factor for each well, add all these results, and divide by the total production, the result being the correcting factor to apply on the plant meter.

In computing the charts we find both the planimeter and the hourly method used. The error due to using the planimeter is very well discussed in the "Foxboro Hand Book," by Brown and Hall, on page 64. Using the planimeter will result in an error in measurement from nothing to 15 per cent high. The roughest hourly method will be more accurate than this. It is cheaper to read charts by the hourly method than to pay 5 or 10 per cent too much for the gas purchased. Most extension books give extensions with three significant figures beyond the decimal point. Carrying more than one significant figure beyond the decimal point does not increase the accuracy whatever and greatly adds to the labor in the office.

The Lone Star Gas Co. uses a large envelope for filing its charts. On the face of this envelope is the name of the well, location, meter number, and all such information is given, and columns are provided for the date, size of orifice plate, coefficient, daily extension and daily deliveries. At the end of the month we multiply the total of the daily extensions by the coefficient, which forms a check against the total of the daily deliveries, showing any error in multiplication during the month. This envelope is used in place of copying the figures in a ledger and makes a very convenient method of handling the charts.

I believe that a very important factor in correctly measuring gas is that of having someone in charge of the computation of charts who has had experience and fully understands the operation of the meters in the field. When charts are sent into the office and computed in the accounting department or by someone who has not had any experience in the field, a multitude of errors will slip by unnoticed that would be caught by a man with field experience. The computation of the charts and the care of the meters in the field should be under one organization for the best results. If this cannot be done, the man figuring charts or in charge of the figuring of the charts should make periodic visits to the field with the meter man so that he will be familiar with conditions and be able to intelligently handle the charts as they come into the office.

IMPRESSIVE SERVICES HELD FOR C. K. CLARK

SHREVEPORT, La., Mar. 26.—At one of the most impressive funeral services ever witnessed in Shreveport, final tribute was paid Wednesday afternoon to the late C. K. Clark, president of the Standard Oil Co. of Louisiana, who died suddenly at his home in Baton Rouge the preceding Monday.

Brought in a special train from Baton Rouge, the body lay in state at the Scottish Rite Cathedral on the platform banked with flowers, which required five five-ton trucks to transport to the cemetery following the services. Final rites were read by Dr. Jasper K. Smith, pastor of the First Presbyterian Church and a friend of the late Mr. Clark, with the Knights Templar and other Masons officiating.

Shreveport offices of the Standard Oil Co., were closed all day Wednesday and all other oil companies closed at noon so that not only executives but also all employes could attend the services. In addition, prominent oil men from all parts of Louisiana and Texas as well as from other fields were present.

BIDS BEING ASKED ON OIL AND GAS LEASES

The Commissioners of the Land Office of the State of Oklahoma will receive sealed bids for oil and gas mining leases upon the following tracts until 2 p. m. April 19, 1927:

Cleveland County—NE. Section 16-10n-2w, 160 acres; NW. Section 16-10n-2w, 160 acres; SE, Section 16-10n-2w, 160 acres; SW, Section 16-10n-2w, 160 acres.

Kay County—SE, Section 13-26n-2w, 160 acres; SW, Section 13-26n-2w, 160 acres.

Kingfisher County—SE. Section 16-15n-6w, 160 acres.

Pottawatomie County—Lot 7 and SW NE, Section 16-5n-5e, 69.40 acres; Lot 2 and E half NW, Section 16-5n-5e, 101.30 acres; Lot 3 of SW, Section 16-5n-5e, 21.50 acres; Lots 4 and 6 and NW SE, Section 16-5n-5e, 82.15 acres.

Sealed bids for the leases listed below will be received until 2 p.m. April 26, 1927.

Greer County—SW, Section 16-7n-22w, 160 acres; NE, Section 13-7n-23w, 160 acres; SE, Section 13-7n-23w, 160 acres.

Lincoln County—Lots 1 and 2 and W half NW, Section 36-12n-6e, 102.71 acres.

Logan County—NW, Section 16-16n-1e, 160 acres.

Price Cutting War Around Los Angeles Is Worst Ever Known

LOS ANGELES, Calif., Mar. 26.—The California gasoline market has been very upset all week. This is especially true of the area in and around Los Angeles where one of the worst price-cutting wars ever experienced is being staged. The trouble started last week when two large marketing companies offered a 6-cent differential to service stations on gasoline. The California Petroleum Corp. retaliated by reducing the price of gasoline at its service stations throughout the State, 2 cents per gallon. About a day and a half later the other companies met the new price set by the California Petroleum Corp. This did not settle the price situation for any length of time, however, and the two companies which started selling at a 6-cent margin were joined by another company and the three continued to offer 6 cents under to independent dealers in spite of the 2-cent price cut at service stations.

This situation lasted until Tuesday when the Pan American Petroleum Co. announced a further reduction of 2 cents in the service station price. The marketing territory of this company extends from San Diego to Santa Barbara so its new price of 14½ cents including State tax is being quoted only in and around Los Angeles and a corresponding price within the above mentioned territory. To date none of the other marketing companies have met the last reduction announced by the Pan American.

Since Tuesday gasoline in Los Angeles could be bought at many different prices. So-called bootleg gasoline, of course, has been extremely hard hit by these price reductions and companies marketing this gasoline have not been able to sell as far below first-grade gasoline as heretofore. Some service stations are offering such gasoline at 13 cents, State tax included. Pan American Petroleum Co. is then selling its first grade at 14½ cents, its competitors are selling their regular first-grade gasoline at 16½ cents and the Union Oil Co. and Associated Oil Co. are selling their ethyl gasoline at 19½ cents. It can readily be seen that the spread between the highest-priced gasoline offered and the lowest is considerable.

Gasoline sold at a 6-cent margin to independent dealers with the regular service station price at 16½ cents, such as some of the companies have been doing during the past week, makes the delivered price at service stations 10½ cents including tax or 8½ cents without tax. If from this the distribution cost is subtracted it can be seen that gasoline at the refinery under such conditions is only bringing from 6 to 6½ cents. This obviously is too low for realization of any profit on gasoline sales. At present, the Pan American Petroleum Co. is selling at its service stations at 14½ cents and to independent service stations are offering a differential of 4 cents. This brings its refinery price in line with companies selling at their own service stations at 16½ cents but offering a 6-cent margin to independent dealers.

The situation cannot last. Pan American Petroleum Co. selling at 14½ cents is getting a goodly amount of gallonage away from competitors who are selling at 2 cents higher. The question is will the other companies meet the price at which Pan American Petroleum is selling gasoline or will those companies giving a 6-cent margin to dealers stop this practice and go back to the 4-cent differential. It was reported Friday morning that those companies offering a year's contract at 6 cents under to independent service stations have definitely stopped this practice and are not signing any late contracts that have come in to them for signature on this basis. If this is true it looks as if the Pan American Petroleum Co. might go back up to 16½ cents with the possibility the price will stay there on the basis of a 4-cent differential to dealers. If, however, the 6-cent differential is not stopped, there is every reason to believe the Pan American Petroleum Co. will continue to sell gasoline at 14½ cents at its service stations and the other companies must meet this price or lose a great deal of gallonage.

The price situation is so acute that most marketers believe it must right itself very soon. There is a preponderance of opinion that the price settled on for the next few weeks at least will be 16½ cents at service stations including tax, with a 4-cent differential to independent dealers. This is not, however, assured and only future developments will show whether this supposition is correct.

Shreveport Market Gasoline and Fuel Oils Are Steadier

By Neil Williams
Staff Correspondent

SHREVEPORT, La., Mar. 28.—A steadier tone in gasolines and fuel oils was reflected in north Louisiana and Arkansas refined markets the past week but another feeling of uncertainty developed Monday following a day of extremely sluggish inquiries. Gas oil and kerosenes gave no indication during the week of any change from their weak position.

U. S. Motor 58-60 437 gasoline enjoyed a little more active spot demand during the greater part of the past week, much of the cheaper material selling around 6½ cents being eliminated. Refiners, especially the Arkansas group, are showing an effort to hold their quotations at 6¾ cents with some at 7 cents yet to move. This material Monday sellers generally were forced to take only 6½ cents.

Natural gasolines are in a peculiar position. Larger manufacturers are entering storage programs rather than sell at lower prices and so far have been holding a market, quoting 4½ to 4⅝ cents f.o.b. Monroe, La., on Grade C. On the other hand there are cases of double A and double B being sold as low as 4¼ cents, one Shreveport refiner buying three cars of Double A Monday at that figure. This is explained in the fact that smaller manufacturers not in a position to store a great amount are forced to cut their prices when they accumulate a surplus which must be moved. One natural gasoline seller Monday offered a Shreveport refiner any quantity at his own price.

Fuel oil is fairly scarce. Refiners are quoting $1.25 on refinery residuum ranging from 14 to 16 gravity. This material was available as low as $1.20. Gas oil for local shipment is being offered at 3½ to 3¾ cents but refiners are being forced to move this material out of the territory and are getting only 3¼ cents. The 41-43 water white kerosene is soft at 5¼ cents, which seems to be the prevailing quotation.

NORTH TEXAS MARKET FUEL AND GAS OIL OFF

WICHITA FALLS, Tex., Mar. 28.—Fuel oil and gas oils were the weak products in the north Texas market during the past week. Gasolines, especially the U. S. Motor grade, strengthened slightly during the week. During the past three weeks fuel oils have dropped from $1.50 to $1.55 a barrel to $1.25 with sales for April reported at still lower prices.

The slump in fuel oil prices is partially due to the fact that several of the refineries in this area have recently started using natural gas fuel instead of fuel oil. This has aided in creating a surplus which the local market was unable to absorb at the prices maintained in this section up to three weeks ago. The shutting down of some cracking units has also added to the quantity of fuel oil and gas oil offered by refiners. Gas oil was available as low as 3¼ cents.

Kerosenes and natural gasolines were firm.

REFINING AND MARKETING

Oklahoma Refiners To Take Rate Case To Federal Courts

A group of northeastern Oklahoma refiners will carry their fight to the Federal Courts if necessary to prevent higher rates from becoming effective from their refineries to Western Trunk Line territory. This decision was agreed to at a meeting of refiners held last week in Tulsa.

The meeting as was explained in the March 24 issue of The Oil and Gas Journal (page 142) was called as a result of the Interstate Commerce Commission's refusal to reconsider its decision in the Mid-Continent rate case in which the rates on refined oils from Oklahoma refineries will be materially advanced. The decision was the result of complaints filed in 1924, by Kansas City, Mo., and Kansas refineries in which they sought and obtained greater differentials under Oklahoma (Group 3) refiners to certain points in Western Trunk Line territory.

Since the Interstate Commerce Commission's decision was announced in July, 1926, several northeastern Oklahoma refiners have endeavored to have the case reconsidered. Early this month the commission finally refused to reopen the case. The new rates are to become effective May 20.

At the meeting last week it was decided to take the case to the Federal Courts if necessary. No definite plan of procedure was agreed upon and it is understood that no action will be taken until April 20 when the new rates to go into effect May 20, will be published.

It is probable at that time the refiners will seek an injunction from making the published rates effective. It is understood an effort is being made to have the southwestern carriers join in the action. These carriers since the decision was announced joined with the Oklahoma refiners in seeking to have the case reopened.

The Mid-Continent Petroleum Corp., Barnsdall Refineries, Inc., Shaffer Oil & Refining Co., Tidal Refining Co., Transcontinental Oil Co., Marland Refining Co. and the Independent Oil & Gas Co. had representatives at the meeting. J. C. Denton, vice president of the Mid-Continent Petroleum Corp., W. C. Franklin, vice president of the Tidal Oil Co. and A. C. Holmes, traffic manager of the Empire Refineries, Inc., were appointed on a committee to represent the refiners.

REFINERY AT MUSKOGEE IS BEING ENLARGED

The Pure Oil Co.'s refinery at Muskogee, Okla., is being equipped to run 10,000 bbls. of crude daily. The plant has been running about 4,000 bbls. but the capacities of the individual units have been considerably above that so by adding towers and revising the hookup along with adding auxiliary equipment the full capacity of the plant will be used.

A large part of the crude refined has been coming from the Seminole Field. It is understood that an engineering survey has been made by the Pure Oil Co. for the purpose of joining the Seminole Field with the company's Oklahoma pipe line system.

RED HAT REGISTERED IN CANADA

CHICAGO, Mar. 26.—As suggested by members at the recent meeting of the Independent Oil Men of America, the Red Hat Gasoline trade-mark of the organization has been legally registered in Canada.

EXPECT COAL STRIKE WILL AID FUEL AND DISTILLATE MARKET

By C. O. Willson

With a strike scheduled to start Friday, April 1, in what is known as the Central Competitive Coal (bituminous) Fields, refiners and marketers of all grades of fuel oils and fuel distillates are concerned in the probable developments of this cessation of activity in the coal industry as it affects the demand and price for their products.

Due to the collapse of the crude and gasoline markets since the first of the year, the coming strike is of special importance to the manufacturers and distributors of petroleum products. Suffering from an overproduction of raw material and its principal refined product and no prospect of material relief in the immediate future, the oil industry generally is naturally interested in any development in a closely allied industry which might aid in removing some of its surplus material.

In this connection certain leaders of the oil industry recently have openly advocated a shifting of refinery operations so as to enlarge the percentages of fuel oil obtained from crude with a corresponding decrease in the gasoline output. If this advice was generally followed in manufacturing operations it obviously would aid in absorbing some of the surplus crude and at the same time make possible a recovery of the gasoline market around which the profitable operation of the oil industry centers.

Fuel Price Downward

The coal strike materializes at a time when the trend in fuel and distillate prices is downward. This trend has been especially apparent in the interior refining areas. The coastal area, where the bunker grades of fuel oil predominate, has not yet experienced any material changes in prices. Should the interior market continue to decline the weakness eventually will be reflected in the coastal prices. The decline in the fuel and distillate prices is due to the fact that the main consuming season has just ended, coupled with the generally weak petroleum market which has already added to the quantity of fuel oil being offered.

Coal Situation

With the thought in mind of determining what effect if any the coal strike will have on a declining fuel oil market, a study has been made of the present coal situation. Statements of those in constant touch with the coal situation, trade journals and market reports are the authorities for the data given in this article.

A study of the available data of the coal industry leads to the conclusion that the present situation in regard to the supply and demand of bituminous coal is such that there is no immediate danger of a shortage sufficient to cause consumers to buy large quantities of fuel oil as a substitute. However, if the strike continues through the summer months, there will be considerable buying of fuel oils and distillates for the coming fall and winter months, a development which should be reflected in higher prices or at least prevent further declines in quotations.

Regardless of the situation as to coal supply and demand, the oil industry has always benefited from strikes or threats of strikes in the coal industry. Many large and small consumers of fuels have started to use fuel oils due to the uncertainty of bituminous coal supply, a development of periodic labor difficulties. These consumers continue to use fuel oils although in many cases coal would be more economical. This attitude on the part of the consumers has been especially beneficial to the oil industry during the past two or three years, a period

(Continued on Page 182)

NEW NORTH DAKOTA LAW DEFINES GASOLINE ANTIKNOCK FEATURES

The refining and jobbing fraternities generally are interested in a new North Dakota law effective July 1 dealing with gasoline specifications as they pertain to anti-knock characteristics. The law is the first of its kind ever passed in any state. Refiners who have studied the provisions of the new law are of the opinion that certain features will complicate its enforcement should the legality of the measure be questioned after July 1.

The law is described as an act to encourage the sale of gasoline or motor fuel for use in high compression motors with resulting fuel economy, permitting the coloring of such motor fuels and prohibiting the sale of so-called "Gasoline Improvers" which are worthless or harmful.

The main feature of the law follow:

"Section 1. The State Food Commissioner and Chemist shall have the authority to prohibit the sale of so-called "gasoline improver" or motor fuel dope and the sale of gasoline mixed or compounded with any other chemical, substance or solution which may be detrimental to the public health, injurious to internal combustion engines or concerning which unsubstantiated claims are made. However, the state Food Commissioner and Chemist shall not have authority to prohibit the sale of any material, substance or solution which has been favorably reported on by the United States Bureau of Standards, or Surgeon, or Bureau of Public Health of the United States."

"Section 2. Any gasoline that shows anti-knock characteristics equal to a blend of 25 per cent benzol and 75 per cent straightrun gasoline from typical Mid-Continent crude oil or its equivalent may be colored by the use of harmless red dye. Any gasoline not showing the anti-knock characteristics specified above must be sold without the addition of any foreign coloring matter or shall be of a color as may be required by the current specification for North Dakota motor gasoline.

"Section 3. The method used to determine if a gasoline meets this requirement shall be the one adopted by the United States Bureau of Standards or recognized by said Bureau as being the most satisfactory.

"Section 4. Any person violating any of the provisions of this act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not less than $10 nor more than $500.

What Is Typical Crude

This law not only increases the number of specifications which sellers must watch in meeting the many and widely different state specifications, and may lead to the adoption of similar laws in other states, but tends to establish a division in the general class of anti-knock fuels. Several objections have been pointed out in the wording of the law as it appears above, based on the fact that it is difficult and almost impossible to find agreement in what might be considered a typical Mid-Continent crude. In addition, there are no specifications on the gasoline to be made from this crude and several different commercial grades might be made, each showing a slightly different antiknock value.

It would be difficult to draw a strict interpretation of the specifications because of the reasons mentioned but even if this point could be established the refiners would still be at a disadvantage in shipping their gasoline to meet these requirements because the method of making a knock test is not standardized and requires the use of expensive equipment and skilled operators. The gasoline could be shipped free of coloring matter but as the red color becomes the means of identifying the antiknock motor fuel the absence of coloring matter might be taken as meaning that the gasoline was not up to the specifications and could not command a premium as in the case of the colored gasoline. In this respect the law seems to discriminate against the smaller refiners but is correct in principal as it will not allow an indiscriminate use of coloring matter by unscrupulous marketers who might color their ordinary motor gasolines or infer by coloring them that they were of special quality and exact a premium for them.

What attitude will be taken toward these technical and practical objections is problematical. The law is being given serious consideration by North Dakota jobbers and refiners shipping into that state.

TO STORE FUEL OIL AT PEARL HARBOR, H. T.

WASHINGTON, D. C., Mar. 28.—The oil tankage of 4,200,000 bbls. capacity at Pearl Harbor, Hawaii, constructed by Edward L. Doheny to store oil removed from the naval oil reserve at Elk Hills, Calif., will be filled by the Navy Department, according to a statement by Secretary Curtis D. Wilbur.

To fill these storage tanks the navy will exchange its royalty crude oil for fuel oil. Secretary Wilbur states that it is expected this available oil will permit the filling of these tanks within 12 months.

NEW YORK STANDARD GETS NAVY CONTRACT

WASHINGTON, D. C., Mar. 28.—The Standard Oil Co. of New York has entered into a contract to furnish 114,000 bbls. of fuel oil at $1.76 per barrel with the Navy Department. This oil is for the Asiatic Fleet and will be delivered at Tsine-Tao, China.

An appropriation for fuel oil for the Navy Department amounting to $12,000,000 for the current fiscal year was made by Congress. Bids for fuel oil for the use of the fleet will be opened in about two months.

NEW GASOLINE "PLANTS" IN CALIFORNIA FIELD

The Standard Engineering Co. of California has completed plans for the building of two natural gasoline plants. One will be located at Huntington Beach with a daily capacity of 20,000 gallons and the second in the Ventura Field.

The company also expects to build another plant at Alamitos if the present development work in that field continues to locate new supplies of gas. The company now operates two plants in California and one in Wyoming with a combined daily capacity of 20,000 gallons daily.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

The Question and Answer Department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

GASOLINE TAX AND FEDERAL DEPARTMENTS

Are the different departments of the United States Government required to pay the tax on gasoline which is levied by the different states?—O. B. E.

The Government, and all departments of the state, pay the gasoline tax in the majority of the states. A few of the states have provision in their laws for rebased for use by the Federal departments.

It is reported that the action of Texas in increasing the tax on gasoline from 1 to 3 cents will curtail flying activities of the Army in the San Antonio district the equivalent of about two months.

Appropriations for gasoline for flying purposes are made in a lump sum and when the appropriations are exhausted flying must stop. Approximately 1,200,000 gallons of gasoline are purchased annually for Kelly and Brooks fields, the two largest flying centers. The 3-cent tax, it is estimated, will cut this gallonage by one-sixth and will reduce the flying time of the two fields 10,000 hours. Testimony given before the legislative committee in Austin which worked out the 3-cent tax indicated that a 3-cent tax would cost the Government 65 cents for every flying hour. Witnesses before the committee said that the Army would likely move much of its Texas flying equipment to Arizona and California, where the tax is remitted on Government purchases, if the 3-cent tax was levied against the Government.

NATURAL GASOLINE IN TEXAS PANHANDLE GAS

What is the average quantity of natural gasoline taken out of 1,000,000 feet of the average natural gas from the Texas Panhandle gas wells?—E. M. R.

The wells of the Texas Panhandle district which produce gas only do not yield profitable quantities of gasoline. The volume of the gas per well varies between 50,000,000 and 75,000,000 feet, having a specific gravity close to 0.62 and a gasoline content of 0.02 gallon per 1,000 cubic feet.

The gas which contains commercial quantities of gasoline is obtained from the wells which produce both gas and oil. The gas is found in these wells between 25 and 100 feet above the oil area and range in volume from 1,000,000 to 80,000,000 feet daily. This gas appears to break through to the oil zone where it has a gasoline content of 0.8 to 0.9 gallon per 1,000 feet, or 800 to 900 gallons per million. The specific gravity of the upper gas is 0.72 and 0.78 in the lower. Usually 20,000 to 9,000,000 feet is the volume of the gas produced with the oil at about 3,100 feet.

EXPLOSIVE AND OTHER PROPERTIES OF HYDROGEN SULPHIDE

Does hydrogen sulphide burn and is it explosive when mixed with air? What temperature is required to liquefy it and why is it called an acid?—J. W.

Hydrogen sulphide is slightly heavier than air, specific gravity 1.1906, is inflammable, burning with a blue flame. When it burns it unites with the oxygen of the air to form sulphide dioxide. It is completely converted to water and sulphur dioxide when there are two volumes of hydrogen sulphide and three volumes of oxygen. When these conditions exist and an electric spark is introduced into the mixture a violent explosion results.

Hydrogen sulphide may be liquefied at ordinary temperatures under a pressure of 250 pounds. The liquid boils at minus 62 Centigrade and becomes solid at minus 85 Centigrade. The gas is soluble in cold water in the ratio of four volumes of the gas to one of water. The water solution has an acid action when tested with litmus paper, which indicates the acid character of the gas.

AVERAGE DAILY PRODUCTION PER WELL IN OKLAHOMA

How much oil is produced per well per day in Oklahoma?—M. P. C.

At the present time the daily production in Oklahoma is approximately 710,000 bbls. from a total of 60,641 wells. This is equivalent to almost 12 bbls. daily per well.

There are 30,000 wells in Oklahoma the combined production of which averages less than 2 bbls. per day per well and 20,000 wells the average of which is less than 1 bbl. per day per well.

GALVANIZED ROOFING IN REFINERY

The galvanized iron roofs of several of our refinery buildings, two years old, are leaking through numerous small holes in the iron which look like acid has dissolved the iron. We have no acid plant to give off fumes which might cause this, and as we can't see a reason for it, we would appreciate any explanation you may have. —W. T.

Probably the iron was in good condition when it was placed on the buildings, so the question of faulty material need not be considered. We have the impression that soft coal is the common fuel used in your locality and that the climate is damp. Under these conditions there may be enough acid formed from the coal smoke and the moisture in the air to cause some trouble. If the crude oil contains much sulphur, and you are not treating the still gases, this fact may suggest another source of the trouble. The sulphur in the gas, or in the flue gases from burning of the fuel oil, would tend to combine with oxygen and moisture in the air to produce acid.

Frequent painting of galvanized roofing will retard corrosion. However, this material is not very satisfactory for refinery buildings. Cement roofing is much better, and the special material made of asbestos and cement is very good.

THE HYDROMETER AND GRAVITY

What is the "gravity" of crude oil as we commonly take it with a hydrometer? On what theory or principle is it figured, or in other words, on what theory is the hydrometer made? Is the "gravity" of crude oil ranging from 20 to 50 taken at a temperature of — 60 Fahrenheit figured the same way as specific gravity and just called gravity for short?—E. G. V.

The word gravity, as used in the petroleum industry in the United States, is simply an indication of the density of the oil in terms of degrees A. P. I. These letters represent the American Petroleum Institute, a committee from which recommended to the United States Bureau of Standards the arrangement of the national tables to be used with hydrometers when testing petroleum oils. Degrees A. P. I. may be converted to specific gravity, after being reduced to the temperature of 60 Fahrenheit, by reference to the Standard Tables, Circular of the Bureau of Standards, No. 154, or by means of the formula

$$\frac{141.5}{131.5 + \text{A. P. I.}^\circ} = \text{Specific grav. at 60 F.}$$

The hydrometer, which is a hollow instrument of metal or glass weighted so as to float upright in a liquid, makes use of the principle that the weight of the volume of liquid displaced by a body is equal to the weight of the body itself. A hydrometer might consist of any graduated scale floating vertically in a liquid, on which the level of the surface of the liquid it displaces could be measured. An ordinary ruler, if properly floated in an upright position, would sink in water to a certain division on the scale. This reading multiplied by the cross section of the ruler will give the volume of a mass of water equal to that displaced by the ruler, and equivalent to the weight of the ruler itself. The ruler would sink in a lighter liquid to a greater extent. A ratio made with these two quantities representing the volumes of the two liquids would give the specific gravity, but as the cross-section of the ruler is a constant, it is only necessary to compare the two readings on the scale to obtain the relative density.

The ordinary hydrometer consists of a glass tube terminating in weighted bulb in order to keep the instrument in an upright position when placed in a liquid. The petroleum hydrometer is made with an arbitrary scale starting with 10 degrees A. P. I., equivalent to the density of water, one, at 60 Fahrenheit, and increasing as the actual density becomes less.

SOLUBILITY OF DIFFERENT FORMS OF SULPHUR

Is the lump form of sulphur soluble to the same extent as the powdered sulphur? —J. J. D.

Sulphur is one of the few elements that is known in several physical states in the pure condition. These forms may be distinguished by the shape of the crystals, absence of crystals and solubility. The common form in which sulphur is used in commerce is the roll or lump. This is obtained by heating the ore and then pouring the melted sulphur into moulds or bins.

When sulphur is heated above its melting point and the hot vapors directed against a cold surface, the sulphur will be deposited as very small crystals called flowers of sulphur. In the method of extracting sulphur from some ores, the vapors pass from a retort to a chamber where at first flowers of sulphur collect but as the process continues, the walls of the chamber become heated so that the sulphur melts, runs to the bottom, and is withdrawn into molds. When sulphur is kept above its melting point for some time amorphous sulphur is formed. This form of sulphur is not soluble. When the powdered sulphur is "flowers of sulphur" it is clear that there may be more or less amorphous sulphur present so that the solubility of the entire mass will be reduced to the extent to which this form of sulphur is contained in it.

Sometimes the lump sulphur is powdered by mechanical means, and of course this powdered sulphur is soluble to the same degree that the original material is.

In a general way it may be said that the lump sulphur is more soluble than the powdered form, because much of the so-called powdered sulphur is flowers of sulphur.

MINERAL SPIRITS OR WHITE SPIRIT

What are the complete specifications which apply to the special naphtha known as "White Spirit" for export to England? —H. M. B.

This is a petroleum product commonly known in the United States as mineral spirits and turpentine substitue, because of its use in the manufacture of paint. Large quantities are used in England and France under the term white spirit. It is reported to be used to a limited extent in France as a motor fuel in the air service, because, when properly made, it does not ignite or flash as easily as gasoline.

The details of the specification for white spirit would require too much space to be given here, but the outline may serve your purpose.

Color—Water white.

Distillation—

Not more than 10 cc. below 302 F.
Not less than 80 cc. below 374 F.
Not less than 90 cc. below 392 F.

Spot Test—No mark on white filter paper after one hour.

Residue—Not over 0.2 per cent by weight and free from mineral matter.

Neutrality Test—Shall be neutral to methyl orange when shaken with water.

Sulphur Compounds—Shall pass the corrosion test with copper strip.

Volatility—Shall be similar to turpentine.

Flash Point—Not less than 78 F. in a closed cup. (Abel.)

CONTINUOUS SYSTEM AND AGITATOR TREATMENT FOR LIGHT PRODUCTS

Do you advise the building of continuous treaters in place of agitators for handling gasoline and kerosene in a small refinery?—N. F.

The continuous system has so many advantages over the open agitator for the treatment of gasoline that there can be no question when there is an opportunity to make a choice. With the continuous units the evaporation loss is almost eliminated and the cost of chemicals should be reduced 25 to 50 per cent. Larger quantities are handled in a day and the fire hazard is reduced.

Many plants continue to use the agitator for the treatment of kerosene, but even here the tendency is toward the closed continuous units. There is better contact, less loss and all conditions are under better control than when the agitator is used.

Brief Items for Plant Operators

Tests in California Extend Range of Oils For Lubrication Use

The possibilities of producing good lubricants from crude oils that today are not being refined for this purpose are promised by a series of tests conducted by the Bureau of Mines at its San Francisco field office. The results of the experimental work indicated that, for use in automotive equipment, lubricating oils need not be refined to as high degree as for use in turbines and similar machinery, and that considerable savings may therefore be made in present oil-refining processes.

This series of engine service tests of internal-combustion engine lubricating oils made from California crude petroleum was undertaken co-operatively by the Bureau of Mines and the American Petroleum Institute. The purpose was to conduct engine tests to determine the relative merits of western oils that do and do not pass the acidity and emulsion tests as set forth in the Federal specifications for class C oils.

Four pairs of oils, each pair made by a different refiner from California crude petroleum, were tested in an engine of a type commonly used for a motor-bus service. The test was severe, the engine running continuously for eight hours at high speed under nearly full load. No oil was added during the test period. Consequently, if differences in the oils were of importance, they should have caused variations in the operation or in the mechanical condition of the engine or in the characteristics of the oils themselves after use.

One oil of each pair was nonemulsifying and had a low alkali-absorption number. The other oil of each pair emulsified readily and had a high alkali-absorption number. Each oil was analyzed both before and after use, and the results on engine conditions of the use of each oil were carefully studied. It was concluded that "Differences indicated by alkali-absorption number (and emulsion, demulsibility, and oxidation numbers) are without significance with regard to engine service."

A lubricating oil for an internal-combustion engine can be considered as giving good service if it lubricates effectively, if with its use there is minimum danger of lubrication failure, and if its consumption is not excessive, states Martin J. Gavin, refinery engineer, United States Bureau of Mines, and Gustav Wade, dynamometer engineer, American Petroleum Institute, in Technical Paper 387, just published by the Bureau of Mines.

All of the oils used in these tests seem to lubricate effectively. The oils of high alkali-absorption numbers seems to have lubricated as effectively as those of low alkali-absorption numbers. The test conditions were much more severe than the average conditions of practical service, yet no difference in lubricating efficiency were detectable.

Two distinct types of lubricating oil are made from petroleum, and they differ fully as much in their characteristics as do anthracite and bituminous coal, the report further points out. The terms "paraffin base" and "naphthene base" are often used to describe these oils. In brief, it can be said that a "paraffin-

(Continued on Page 178)

NEW CRACKING UNITS AT DEEPWATER PLANT

The Deepwater Oil Refineries, Inc., now has three new Holmes-Manley cracking units in operation at its Houston, Tex., refinery. All three units have started operating during the past month. The Holmes-Manley units are the first to be operated at the Deepwater refinery, the operations of which in the past have been confined to manufacture of lubricating oils.

Cracking stock for the cracking units are obtained from Mirando crude. A gas oil cut averaging about 30 per cent of the crude charge is taken in a topping plant and this is used as charging stock for the three units. The residuum from the topping operation constitutes the lub stock. The cracking units have a rated capacity of approximately 4,000 bbls. daily.

USE OF PETROLEUM AS MEDICINE GROWS

The use of petroleum as medicine is constantly increasing, according to the Bureau of Chemistry of the United States Department of Agriculture. The following list covers the principal uses at the present time:

Petrolatum and White Petrolatum, U. S. P. (vaseline, etc.).

Liquid Petrolatum, light and heavy, U. S. P.

Paraffin, U. S. P.

Chlorinated Paraffin, U. S. P.

Purified Petroleum Benzine or Petroleum Ether, U. S. P. (used to some extent as a solvent for oleoresin and in the preparation of various alkaloids and other medicinal chemicals).

Crude Petroleum (used in liniments, etc.).

Ethylene and some of its homologues (used as anaesthetics).

THREE-DAY COURSE FOR GAS METER MEN

A three-day course is to be given at the University of Oklahoma at Norman for gas meter men. The course is to be arranged by the College of Engineering of the university with the co-operation of the Corporation Commission and the Oklahoma Utilities Association and will be similar to those of previous southwestern gas meter short courses. The work will be divided into two parts, and will extend through April 5, 6 and 7. The morning session will consist of lectures and the afternoon session of class room instruction and bench work.

The classroom instructions will be in charge of members of the committee while the classroom lectures will be given by the engineers of the equipment manufacturers. Many men in the natural gasoline business will attend this course, and although the past meetings have been very successful it is felt this one will be exceptionally well attended. Engineers from many of the Mid-Continent oil companies appear on the program, copies of which are now available from the university.

CRYSTAL REFINING CORP. EXPANSION PROGRAM

Crystal Oil Refining Corp. of Shreveport has let the contract for a new 4,500-bbl. pipe still and bubble towers to the Widdell Engineering Co. and Arthur G. McKee & Co. associates. An engineer of the company has arrived in Shreveport and will oversee the immediate construction of the unit.

The Crystal refinery at Shreveport has been undergoing an extensive improvement and expansion program, included in which has been the installation of two high-pressure Jenkins cracking units. Fire already has been placed under one unit and both are expected to be on full stream within two weeks.

Radical changes in hook-up are being made at the plant by which the residuum from the two batteries of shell stills will be run through heat exchangers to the pipe still, and the gas oil cuts from the pipe still will be taken through heat exchangers to the Jenkins units.

MANUFACTURERS VISIT PETTY ISLAND PLANT

The Department of Manufacture of the National Petroleum Association has been invited to visit the new 4,000-bbl. Petty Island refinery of the Crew Levick Co. Arrangements have been made to meet at the Manufacturers Club, in Philadelphia, April 8, and the visitors will then be taken to the plant to spend the entire day inspecting the equipment. The trip will be particularly interesting to the manufacturers as the plant is operating a new type of distilling equipment, which is a departure from both the batch stills or pipe stills. The details of the trip are being arranged by the Crew Levick Co. through Fayette Dow, Washington counsel of the association.

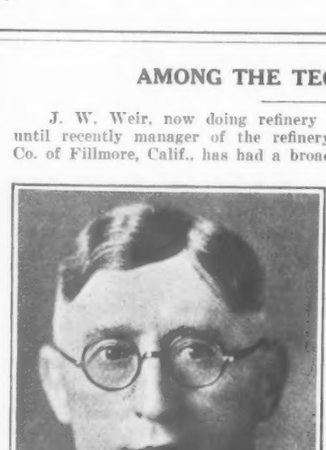
ROXANA NEW PLANT

CHICAGO, Mar. 27.—A number of officials of the Roxana Petroleum Corp., attended the beginning of commercial runs at the refinery. Statements were made concerning the development of the plant, it being asserted that the present plant was only a small part of the intended refinery which it is expected will ultimately be at least a 45,000 bbls. plant. It was stated that plats, plans, blue prints and specifications for the enlarged plant were prepared and ready for use of the construction department at any time that the management believed to be timely.

The enlarged plant, when constructed, is planned to have a great diversity of products, some of which will be practically new to this country. Although operating on a reduced scale, the present plant requires considerable further work on essential parts such as the loading docks at the canal. The cracking stills are also not ready to be operated and will not be for another 30 days. The present daily throughput of the plant is around 5,000 bbls.

AMONG THE TECHNICAL MEN

J. W. Weir, now doing refinery consulting work in California, and until recently manager of the refinery division of the Ventura Refining Co. of Fillmore, Calif., has had a broad training in the refining of asphalt base oils and is well known to the oil fraternity for his development work in contact filtering and wax extraction.



J. W. Weir

His introduction to the industry was as a tool dresser in the Mexican oil fields. His first refinery employment was at the Tampico plant of the Waters-Pierce Oil Co. at Tampico. In 1903—two years after he joined this company—he was made assistant superintendent of that plant. He was later sent to Vera Cruz to take charge of the lubricating oil plant there.

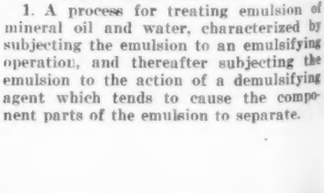
In 1906, Mr. Weir left Mexico for the California plants of the Standard Oil Co. of California. His service with that company was continuous until 1918. During that time he had various responsibilities, but much of his time was spent on research problems. He did considerable work in the treatment of oils with sulphur dioxide and was in charge of the experimental plant at Richmond for the recovery of the sulphur-trioxide gas as a part of the process. Since the perfection of this process, it has had a wide use in the making of high-grade kerosenes and special oils.

In 1916, Mr. Weir started his work on contact filtering and secured several patents in the perfection of the process. In 1918, he resigned to take over the management of the refining department of the Ventura Refining Co. at Fillmore, Calif. He continued his work in the development of contact filtering until recently, when he sold his patents to the Standard Oil Co. of California. He then began research work in the extraction of wax by the use of a fine clay.

RECENT PATENTS

(Additional Patents on Page 201)

1,617,738. Process for Treating Petroleum Emulsions. Charles C. Averill, Houston, Tex., assignor to William S. Barnickel & Co., Webster Groves, Mo., a corporation of Missouri. Filed October 12, 1925. Serial No. 62,039. 2 claims. (Cl. 196—3.)



1. A process for treating emulsion of mineral oil and water, characterized by subjecting the emulsion to an emulsifying operation, and thereafter subjecting the emulsion to the action of a demulsifying agent which tends to cause the component parts of the emulsion to separate.

Oil Securities Were Generally Lower

Imperial Oil, Union Tank Car and Vacuum Oil Were Exceptions, Being Active and Higher

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Mar. 28.—Oil securities were generally lower during the past week. The exceptions were Imperial Oil, Union Tank Car and Vacuum Oil, all of which were active and higher. Lago Oil and Pan American issues were also apparently under accumulation.

American Maracaibo

At a meeting of the directors of the American Maracaibo Corp., F. H. Wickett, president chairman of the Pan American Petroleum & Transport Co., was elected president and chairman of the board of directors. The following new directors were added to the board: F. H. Wickett, E. R. Tinker, Chase Securities Co.; Gasper G. Bacon; J. J. Cotter, vice president of the Pan American Petroleum & Transport Co.; Edward F. Hayes and George N. Lindsay of Blair & Co.; Oscar L. Gubelman; William M. Chadbourne and Phillip L. Reed. The foregoing, with F. D. Cochrane, Frank Finsthwait and F. R. Ryan, who continue as directors, comprise the new board.

Atlantic Refining

The report of the Atlantic Refining Co. and subsidiaries for the year ended December 31, 1926, shows net profit of $7,021,334 after interest, depreciation, depletion, inventory adjustments, Federal taxes, etc., equivalent after preferred dividends, to $11.24 a share earned on 500,000 shares of common stock. This compares with $7,167,149 or $11.59 a share in 1925.

The consolidated income account for 1926 compares with 1925 as follows:

	1926	1925
Gross income	$161,015,952	$137,849,719
Expenses	143,390,874	118,743,140
Oper. income	$ 17,625,078	$ 19,106,579
Other income	1,501,748	1,273,537
Total income	$ 19,126,826	$ 20,380,116
Interest	1,048,486	1,249,222
Dept. and depl., reserve, etc.	9,767,842	10,183,567
Inven. adjust.	339,164	730,178
Federal taxes	950,000	1,050,000
Net profits	$ 7,021,334	$ 7,167,149
Preferred dividends	1,400,350	1,401,050
Surplus	$ 5,620,984	$ 5,766,099

The consolidated balance sheet of the Atlantic Refining Co. as of December 31, 1926, compares with 1925 as follows:

Assets	1926	1925
*Plant, etc.	$ 68,291,747	$ 60,933,603
Invest. in assoc. cos.	8,018,562	7,457,871
Lib. bonds, etc.	2,015,836	4,068,627
Accts. & notes rec.	16,238,160	15,835,367
Merchandise and materials	38,470,613	36,995,396
Cash	3,206,625	2,346,457
Improv. reserve	1,200,000	4,000,000
Advances	167,043	168,802
Accrd. inst. receiv.	157,856	160,803
Sundry assets	2,507,553	2,050,344
Total	$140,273,694	$134,017,270
Liabilities		
Preferred stock	$ 20,000,000	$ 20,000,000
Common stock	50,000,000	50,000,000
Subsid. cos. stock	276,400	278,200
Bonded debt	17,554,950	23,931,667
Federal taxes	950,000	1,050,000
Accts. payable	7,293,601	5,209,588
Accrued items	382,111	273,007
Deferred items	360,321	204,092
Inst. reserve, etc.	9,801,586	5,213,921
Pf. of subsidiaries	65,235	160,116
Surplus	33,719,960	27,956,911
Total	$140,273,694	$134,017,270

*After depreciation and depletion. ‡Not held by Atlantic Refining Co.

Indian Refining

The Indian Refining Co. and subsidiaries report for the year ended December 31, 1926, net profit of $1,030,549 after expenses, depreciation, interest, Federal taxes, etc., equivalent to $44.87 a share earned on 22,964 shares of 7 per cent cumulative preferred stock, on which no dividends have been paid since December 31, 1921. Allowing for only regular 7 per cent annual preferred dividend requirements, balance is equal to $1.10 a share (par $10) earned on 785,068 shares of common stock.

The consolidated income account for 1926 compares with 1925 as follows:

	1926	1925
Net sales	$23,657,732	$20,159,928
Costs and expenses	21,579,762	18,810,243
Balance	$ 2,077,970	$ 1,349,685
Other income net	21,204	102,646
Total income	$ 2,056,768	$ 1,452,331
Depreciation	757,616	751,757
Federal taxes	50,000	.....
Interest, etc.	217,603	348,369
Net profit	$ 1,030,549	$ 352,205

The balance sheet of the Indian Refining Co. as of December 31, 1926, shows total assets and liabilities of $19,406,245, against $20,654,340 on December 31, 1925.

Oklahoma Natural Gas

The report of the Oklahoma Natural Gas Corp. and subsidiaries for the year ended December 31, 1926, shows profit of $2,295,802 after expenses, interest, etc., but before depreciation, depletion and Federal taxes.

The consolidated balance sheet of the Oklahoma Natural Gas Corp. and subsidiaries as of December 31, 1926, follows:

Assets: Fixed capital, $27,312,788; cash, $604,541; receivables, $1,109,677; materials and supplies, $1,018,004; prepayments, $34,975; investment in affiliated companies, $507,282; special deposits, $1,851; deferred charges, $143,252; suspense items, $34,070; total, $30,766,740.

Liabilities: 7 per cent preferred stock, $2,100,000; common stock (represented by 260,000 no par shares), $3,626,150; funded debt, $21,000,000; notes and accounts payable, $405,582; gas purchased payable, $325,531; pay rolls payable, $79,787; advance payments, $34,859; customers' deposits, $522,803; accrued interest, dividends, taxes, etc., $972,918; miscellaneous and unadjusted credits, $38,115; sinking fund reserve, $235,333; surplus, $1,425,662; total, $30,766,740.

Superior Oil Corp.

The consolidated income account of the Superior Oil Corp. for the year ended December 31, 1926, shows net profit of $75,850 after charges, depreciation and depletion and is equal to 6 cents a share earned on 1,103,238 shares of no par value stock. This compares with net loss of $737,862 in 1925.

Texas Pacific Coal & Oil

The report of the Texas Pacific Coal & Oil Co. and subsidiaries for the year ended December 31, 1926, shows net income of $1,578,043 after depreciation, depletion, interest, amortization, etc., equivalent to $1.86 a share (par $10) earned on 844,804 shares of stock. This compares with $730,430, or 86 cents a share, in 1925.

The consolidated income account for 1926 compares as follows:

	1926	1925
Gross earnings	$7,731,233	$5,641,373
Operating expenses	3,909,944	2,809,413
Operating profit	$3,821,289	$2,831,960
Other income	874,187	536,706
Gross income	$4,695,476	$3,368,666
Int., rent, etc.	870,185	909,404
*Depr., etc.	2,247,248	1,728,832
Net income	$1,578,043	$ 730,430

*Includes depletion, amortization, etc.

The consolidated balance sheet of the Texas Pacific Coal & Oil Co. as of December 31, 1926, compares with 1925 as follows:

Assets	1926	1925
Coal lands and bldgs.	$ 5,497,705	$ 5,673,472
Oil, gas, wells, etc.	22,438,976	21,114,736
*Excess book value	679,594	679,594
Cash	1,179,572	849,929
Call loans	300,000	200,000
Securities	524,777	516,345
Due from subsidiaries	636,126	555,903
Notes, accts. receiv.	969,730	737,612
Inventories	1,810,608	1,645,742
†Refund claims	900,000	2,596,690
Placed with trust	99,575	88,716
Deferred items	269,566	497,299
Total	$35,306,229	$35,155,037
Liabilities		
‡Capital stock	$ 8,448,048	$ 8,448,048
†Refund claim	900,000	2,596,690
Deposit with trust	73,500	75,000
Accts., notes payable	731,021	948,567
Due subsid. cos.	.....	4,466
Depl. reserve, etc.	6,546,678	6,180,179
Deprec. reserve	7,452,536	7,448,184
Deferred credits	27,694	5,194
Surplus	11,126,752	9,448,709
Total	$35,306,229	$35,155,037

*Excess cost of Homestake Expl. Corp. over book value. †Federal tax refund claim. ‡Par value $10.

Amerada Corporation

The annual report of the Amerada Corporation shows net earnings for 1926 after all charges, including depletion, depreciation and taxes, amounted to $4,933,083.37, or $6.05 per share on the 814,800 shares outstanding on December 31, 1926. Figured on the average number of shares outstanding during the year, net earnings were at the rate of $6.69 per share. A comparison of earnings for the past two years follows:

	1926	1925
Gross oper income	$14,746,502.64	$8,172,685.49
Purchases, oper. expenses, leases abd., etc.	5,031,042.43	3,664,230.44
Operating income	$ 9,715,450.21	$4,508,455.05
Other income	252,533.23	192,914.41
Total income	$ 9,967,993.44	$4,701,369.46
Depr., depl., Fed. taxes, contingencies	5,034,910.07	2,202,940.74
Net income	$ 4,933,083.37	$2,498,428.72
Earnings per share on stock outstanding: Before depr., depl., Federal taxes	$12.23	$7.99
After all charges	6.05	4.24

REHEARING DENIED

SAN ANTONIO, Tex., Mar. 26.—Plea for rehearing has been denied in Federal court here in the Burton-Roos case, which has been in court since 1921 and which involves large sums in Mexico oil properties in the Tampico district. The rehearing was asked by Ed Roos and is in the Lane, Walters & Storey end of the case.

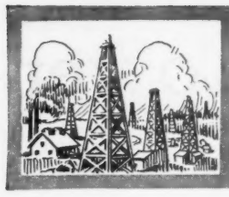
NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. Quot. Mar.28	Clos. Quot. Mar.21	1927 High	1927 Low	1926 High	1926 Low	1925 High	1925 Low
Amerada Corp.		31⅝	31¼	37⅝	30⅜	32⅞	24¾	..	..
Atlantic Ref., com.	100	110½	109½	117⅜	107	128⅜	97	117½	95½
Barnsdall "A"	25	30½	30¼	35½	27	32½	23½	33½	18⅜
California Pet., com.	25	27⅞	28	32⅜	26¾	38⅛	30⅞	34⅜	23⅜
Houston Oil	100	103	102¾	124⅜	60⅛	75	50¼	85	59
Independent Oil & Gas	..	23½	25⅝	32⅜	23½	34	20¼	41⅜	13½
Louisiana Oil	10	13½	13⅜	18⅛	13½	19⅜	12	23⅜	13⅜
Maracaibo	..	17½	*19	22⅜	16¼	27⅜	18⅜	35½	20⅜
Marland	..	50	50⅞	58½	49⅝	63⅜	49¼	60⅛	32⅜
Mid-Continent Pet.	..	34	34⅜	39⅜	33⅞	41	25⅝	38	25⅜
National Supply	50	88¼	90	95⅜	82½	84⅞	55½	71	54⅜
Oil Well Supply	25	37	32⅜	40⅜	31¼	36	30	38	33⅜
Pan. Amer., B	50	64¼	61¾	65⅞	60⅜	72⅜	56⅛	83⅞	59½
Pan. Amer., Western B	..	26⅞	29	37⅛	26⅞	46	34	94⅜	37¼
Phillips Pet.	..	50½	50⅞	60¼	49⅛	54⅞	42⅛	47⅛	36¼
Producers & Refiners	50	23⅜	24	32	16⅜	26	11	32⅝	12½
Pure Oil, com.	..	28⅜	29	32⅝	27⅛	31	25⅝	32⅜	25½
Royal Dutch, N. Y., sh.	13.40	50⅝	50	54⅛	50	57⅜	43⅞	57⅞	45¼
Shell Transport	10	*45½	*46	49	44½	48⅞	42	49	39⅜
Shell Union, com.	..	29	29¼	31⅜	28	30⅞	24	28⅜	21⅝
Simms Pet.	10	19	19¼	22⅜	18⅞	28⅝	16½	28½	17¾
Sinclair Consolidated	..	18	17⅜	22⅜	17⅝	24⅞	16⅜	24⅞	17
Skelly Oil	25	30⅝	31¼	37⅜	30½	37⅛	27	32½	21⅜
Standard of Calif.	25	56½	56	60¾	55½	63½	54	67¼	52½
Standard of N. J., com.	25	37⅜	37¼	41⅜	37¼	46⅜	37½	47½	38⅝
Standard of N. Y.	25	31¼	31½	34⅛	31	47¼	30⅝	48⅝	40
Sun Oil Co.	..	30½	30	34⅞	30	41⅝	30½	43⅞	38½
The Texas Company	25	48⅝	48½	58	47⅝	58	48	55	42⅝
Tex. Pac. Coal & Oil	10	13⅝	13¼	16⅜	13	19½	12⅛	23⅜	11
Tide Water Oil	25	25	*26	29⅛	27	39¼	27	..	..
Transcontinental	..	4½	4⅝	5	4⅛	5½	3	5⅝	3½
Union Oil of Calif.	25	44⅜	44½	56½	42⅞	58⅜	37½	42⅝	33⅜
Union Tank, com.	100	*100	99¾	102	95	120⅜	84½	‡134	118
White Eagle O. & R.	..	25½	25¼	27½	25⅛	29⅜	25⅛	21⅜	25⅝
Standard Oils									
Anglo-Amer. Oil	£1	19¼	*19	21⅝	18¾	19⅜	16½	26¾	17½
Borne Scrymser	100	*53⅛	*55	69	53¼	75	65	‡240	205
Buckeye Pipe Line	50	50	47	48½	45	59½	47⅝	72	63½
Chesebrough Mfg. Co.	25	*78	*79	82	76½	81½	63	74	48¼
Continental	10	19⅜	19⅝	22⅜	19⅜	25⅞	19¼	31½	21⅞
Cumberland Pipe Line	100	93	89	137	106	137	102	156	128
Eureka Pipe Line	100	*50	*49	51¼	47	53⅜	43	96	61¼
Galena Signal, com.	100	*10¼	*10½	13½	10¼	32½	9⅞	68½	23½
Humble O. & R. Co.	25	59¼	59	62⅜	54	68⅛	52	99	42½
Illinois Pipe Line	100	137	139½	140½	123⅜	144	131	154½	124
Imperial Oil	..	45¼	42	46	37⅜	39⅜	32½	39¼	27¼
Ind. Pipe Line	50	*66½	64½	69½	61	68	52¾	84	87½
International Pet. Co.	10	32	30⅝	34⅞	30½	35¼	28⅝	25⅜	22⅛
National Transit Co.	12.50	24⅝	13⅞	14	13⅜	20⅜	27¼	25½	16½
New York Transit	100	*32	*32	36	31¾	51½	27¼	79	50
Northern Pipe Line	100	*76	*78	79¼	70	80½	64	88	67½
Ohio Oil Co.	25	58⅜	48⅞	64¼	57½	67⅜	55⅜	65¼	50
Penn-Mex Fuel	25	*16½	*16½	19	16½	24¼	15	44	19
Prairie Oil & Gas	25	49	48⅞	55½	48¼	60¼	48	65½	45⅞
Prairie Pipe Line	100	148½	148	151	132	137½	122½	129⅜	105
Solar Refining Co.	100	185	186	201½	185	212	184½	259	200
So. Penn Oil	25	36⅝	35¼	41½	35½	50	35	‡197	139
S. W. Pa. Line	100	*61	*57½	62½	55½	56	47½	84	50
Southern Pipe Line	50	19⅛	*15½	27¼	15½	27	24	‡103	63
Standard of Indiana	25	67⅝	67½	74¼	66½	10½	61⅝	70⅜	69½
Standard of Kansas	25	18⅜	16½	20⅞	15⅝	36½	16½	46	30¼
Standard of Kentucky	25	114⅞	114⅞	122¼	114½	134⅜	108	137	114⅜
Standard of Nebraska	25	46½	47	49½	46⅛	51⅞	42	‡270	231
Standard of Ohio, com	100	76½	*317½	254	335	362	192½	369	338
Swan & Finch, com.	25	*16	*15½	16	15	21	18	27	12
Vacuum Oil	25	107⅝	105¼	110½	95⅛	109⅝	94½	109½	80½
Miscellaneous									
Gulf Oil Corp of Pa.	25	*93	92⅝	96½	92¼	95	82½	98¼	63½
Tidewater Associated	..	19	18⅝	23½	17½	27	21	..	..

*Bid, no sales. ‡Old stock. †New stock.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Mar. 28	58.51	Feb. 21	60.26	Jan. 17	60.38
Mar. 21	58.93	Feb. 14	61.13	Jan. 10	59.42
Mar. 14	59.26	Feb. 7	60.51	Jan. 3	58.94
Mar. 7	59.34	Jan. 31	60.09	Dec. 27	60.22
Feb. 26	60.83	Jan. 24	59.89	Dec. 20	59.19



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Mar. 29		Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.06½	.06¾	.06¼	.06½	.06¾	
56-58 450 end point	.06¼	.06½	.06	.06¼	.06½	.06¾
58-60 450 end point	.06¼	.06½	.06	.06¼	.06½	.06¾
58-60 450 end point	.06¼	.06½	.06	.06¼	.06½	.06¾
58-60 437 end point (U. S. Motor)	.06½	.06¾	.06¼	.06¾	.06¾	.07
60-62 400 end point	.07	.07¼	.07	.07¼	.07½	.07¾
64-66 375 end point	.07¼	.07½	.07¼	.07½	.08¼	.08½
68-70 360 end point	.07¾	.08	.07¾	.08	.08¾	.09
64-66 437 end point (blend)	.06¼	.06½	.06	.06¼	.06½	.07
KANSAS—						
58-60 437 end point (U. S. Motor)	.06¾	.07	.06½	.07	.07	.07¼
NORTH TEXAS—						
48-50 450 end point (Naphtha)	.06¼	.06½	.06¼		.06½	.06¾
56-58 450 end point	.06¼	.06½	.06	.06¼	.06¾	.07
58-60 437 end point (U. S. Motor)	.06½	.06¾	.06¼	.06½	.06¾	.07
60-62 400 end point	.06¾	.07¼	.06½	.06¾	.07½	.07¾
64-66 390 end point	.07	.07¼	.06¾	.07	.08	.08¼
64-66 375 end point	.07¼		.07	.07¼	.08¼	.08½
68-70 360 end point	.07¾	.08	.07¾	.08	.08¾	.09
64-66 437 end point (blend)	.06¼	.06½	.06		.06½	.06⅜
NORTH LOUISIANA—						
58-60 437 end point (U. S. Motor)	.06½	.06¾	.06½	.06¾	.07	.07¼
ARKANSAS—						
58-60 437 end point (U. S. Motor)	.06¾	.07	.06½	.06¾	.07	.07¼
PENNSYLVANIA—						
52-54 Naphtha	.09½	.09¾	.09½	.09¾	.10¼	.10½
54-56 Naphtha	.09½	.09¾	.09½	.09¾	.10½	.10¾
58-60 Gasoline	.08¾	.09	.09	.09¼	.10½	.10¾
60 Gasoline	.09¼	.10	.10	.10¼	.11¼	.11½
62 Gasoline	.10	.10¼	.10¼	.10½	.11½	.11⅝
64 Gasoline	.10¼	.10½	.10¾	.11	.12	.12¼
CALIFORNIA—						
58-60 437 end point (U. S. Motor) domestic	.07	.08	.09	.10	.10	.10½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 end point (Naphtha)	.06¼	.06½	.06½	.06¾	.07	.07¼
56-58 450 end point	.06¼	.06½	.06½		.06¾	
58-60 437 end point (U. S. Motor)	.06½	.07	.06½	.06¾	.06¾	.07
60-62 400 end point	.07	.07¼	.07	.07¼	.07¾	.08
64-66 375 end point	.07½	.07¾	.07½		.08¼	.08½
68-70 360 end point	.07¾	.08	.07¾	.08	.08¾	.09
64-66 437 end point (blend)	.06½	.06¾	.06¼	.07	.06½	.07

NATURAL GASOLINE

	Mar. 29		Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04½		.04½	.04¾	.04¾	
Grade A, 72-79, 375 e.p., rec. 90%	.05	.05¼	.05	.05¼	.05¼	.05½
Grade BB, 84-92, 375 e.p., rec. 85%	.04	.04¼	.04		.04	
Grade B, 76-83.9 375 e.p., rec. 85%	.04¼	.04½	.04¼		.04½	
Grade C, 80-90, 375 e.p., rec. 78%	.03¾	.04	.03½	.03¾	.03¾	.04
NORTH TEXAS—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04½		.04½	.04¾	.04¾	
Grade A, 72-79.9, 375 e.p., rec. 90%	.05	.05¼	.05	.05¼	.05¼	.05½
Grade BB, 84-92, 375 e.p., rec. 85%	.04	.04¼	.04	.04¼	.04	.04¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.04½		.04¼	.04½	.04½	
Grade C, 80-90, 375 e.p., rec. 78%	.04		.03¾	.04	.04	
NORTH LOUISIANA—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¼	.05½	.05¾	.06¼	.06	.06½
Grade B, 76-83.9, 375 e.p., rec. 85%	.05	.05¼	.05½	.05¾	.05½	.05¾
Grade C, 80-90, 375 e.p., rec. 78%	.04½	.04¾	.04¾	.05	.05	.05¼
CALIFORNIA—						
75-86, 375 390 end point	.09	.11½	.11	.12½	.11½	.13
CHICAGO DISTRICT (Based on Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%		.04½	.04¾		.04¾	.05
Grade A, 72-79.9, 375 e.p., rec. 90%		.05	.05	.05¼	.05¼	.05½
Grade BB, 84-92, 375 e.p., rec. 85%		.04	.04		.04¼	.04½
Grade B, 76-83.9, 375 e.p., rec. 85%		.04¼	.04½			.04½
Grade C, 80-90, 375 e.p., rec. 78%	.03½	.03¾	.03½	.03¾		.04

BURNING OIL

	Mar. 29		Mar. 22		Mar. 15	
KANSAS—						
41-43 water white Kerosene	.05	.05¼	.05¼	.05½	.06	.06¼
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04¾	.05	.04¾	.05	.05¼	.05½
42-44 water white Kerosene	.05	.05¼	.05¼	.05½	.05¾	.06
NORTH LOUISIANA—						
41-43 prime white Kerosene	.05¼	.05½	.05¼	.05½	.05¾	
NORTH TEXAS—						
41-43 water white Kerosene	.04½	.04¾	.04¼	.04½	.05	.05¼
ARKANSAS—						
41-43 water white Kerosene	.05	.05¼	.05	.05¼	.05¾	
PENNSYLVANIA—						
43 Kerosene prime white	.06½	.06¾	.06½	.06¾	.06¾	.07
45 Kerosene water white	.06¾	.07	.06¾	.07	.07	.07¼
46 Kerosene water white	.07¼	.07½	.07¼	.07½	.07¾	.08
47 Kerosene water white	.08	.08¼	.08	.08¼	.08¼	.08½
300 Mineral Seal	.08¼	.08½	.08⅜	.08½	.08½	.08⅝
CALIFORNIA—						
38-40 water white (high burning test)	.07	.07½	.07	.07½	.07	.07½
Engine distillate, 43-45, 445 end point	.07	.07½	.07	.07½	.07¼	.07¾
Engine distillate, 42-44, 480 end point	.06¾	.07¼	.06¾	.07¼	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.04¾	.05	.05	.05¼	.05½	
42-44 water white Kerosene	.05¼	.05½	.05¾	.06	.06	.06¼

FUEL OILS

	Mar. 29		Mar. 22		Mar. 15	
KANSAS—						
24-26 Fuel Oil	1.30	1.35	1.37½	1.40	1.40	1.45
32-36 Gas Oil	.03¼	.03½	.03⅝	.03⅞	.04	.04¼
38-40 Distillate	.04	.04¼	.04½	.04¾	.04¾	.05
OKLAHOMA (Group 3)—						
Below 22 Fuel Oil	1.07½	1.10	1.10	1.12½	1.12½	1.15
22-26 Fuel Oil	1.12½	1.15	1.12½	1.15	1.17½	1.20
26-30 Fuel Oil	1.20	1.25	1.20	1.22½	1.27½	1.30
24-26 Fuel Oil	1.17½	1.20	1.17½	1.20	1.22½	1.25
28-30 Fuel Oil	1.27½	1.30	1.30	1.35	1.40	1.45
32-36 Gas Oil (dark)	.03⅛	.03¼		.03⅜		.03⅝
32-36 Gas Oil (straw overhead)	.03⅛	.03¼	.03⅜	.03¾	.03¾	.04
36-38 Distillate	.03⅜	.03½	.03½	.03¾	.04	.04⅜
38-40 Straw Distillate	.03½	.03¾	.03¾	.03⅞	.04¼	.04⅝
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.20	1.25	1.30	1.35	1.50	1.55
32-36 Gas Oil (straw)	.03⅛	.03¼	.03½	.03¾	.03¾	.04
38-40 Straw Distillate	.03½	.03¾	.03⅞	.04⅛	.04¼	
NORTH LOUISIANA—						
18-20 Fuel Oil	1.20	1.25	1.20	1.25	1.25	
32-36 Gas Oil	.03¼	.03½	.03⅜	.03¾	.03¾	.04
ARKANSAS—						
36-38 Distillate	.04⅛	.04¼	.04⅛	.04¼	.04¼	.04⅜
32-36 Gas Oil (straw)	.04	.04⅛	.04	.04⅛	.04⅛	.04⅜
16-20 Refinery Fuel Oil	1.20	1.22½	1.20	1.22½	1.20	1.22½
GULF COAST (South Texas)—						
Gas Oil	.05⅛	.05¼	.05⅛	.05¼	.05¼	.05⅜
Fuel Oil	1.60	1.65	1.60	1.65	1.60	1.65
PENNSYLVANIA—						
30-34 Fuel Oil	.05⅞	.06	.05⅞	.06	.05⅞	.06
36-40 Fuel Oil	.06⅛	.06¼	.06⅛	.06¼	.06¼	.06⅜
CALIFORNIA—						
33-36 Distillate	.04	.04¾	.04	.04¾	.04	.04¾
27-32 Distillate	.03½	.04	.03½	.04	.03½	.04
*15-20 Fuel Oil, Bunkers (at tide water)	.92½	1.04	.92½	1.04	.92½	1.04
15-20 Fuel Oil (cargo lots)	.79	.87½	.79	.87½	.79	.87½
27 plus Diesel	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3	1.20	1.22½	1.20	1.25	1.25	
22-26 Fuel Oil (sellers' cars) Group 3	1.17½	1.22½	1.17½	1.20	1.20	1.22½
18-22 (Group 3)	1.10	1.15	1.15	1.17½	1.17½	1.20
16-20 (Smackover)	1.20	1.22½	1.20	1.25	1.25	
32-36 Gas Oil (zero)	.03⅜	.03½	.03¾	.04	.04	.04⅜
32-36 Gas Oil (industrial)	.03¼	.03⅜	.03½	.03¾	.03¾	.04
36-38 Distillate	.03⅜	.03½	.03¾	.04	.04	.04⅜
38-40 Straw Distillate	.03⅝	.03¾	.04	.04⅛	.04¼	.04⅜

*Bunkers.

LUBRICATING OIL AND WAX

	Mar. 29		Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¾	.07	.06¾	.07	.06¾	.07
100 vis., 3 color, 20-25 cold test	.06½	.07	.06½	.07	.06½	.07
150 vis., 3 color, 20-25 cold test	.08½	.09	.08½	.09	.08½	.09
150 vis., 4 color, 20-25 cold test	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
180 vis., 3 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
180 vis., 4 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
180 vis., 5 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
200 vis., 3 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
200 vis., 4 color, 23-28 cold test	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
200 vis., 5 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
240 vis., 3 color, 25-30 cold test	.13¼	.14	.13¼	.14	.13¼	.14
240 vis., 4 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 5 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
280 vis., 3 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
280 vis., 4 color, 25-30 cold test	.15¼	.15½	.15¼	.15½	.15¼	.15¾
280 vis., 5 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
Cylinder Stocks:						
600, steam refined, light green	.07½	.10	.07½	.10	.07½	.10
600, steam refined, dark green	.05	.06	.05	.06	.05	.06
190-200 vis. @ 210 Bright Stock	.31	.33	.31	.33	.31	.33
150-160 vis. @ 210 Bright Stock	.26		.26		.26	
Waxes:						
124-126 White Crude Scale Wax	.03	.03¼	.03¾	.04	.04	.04½
PENNSYLVANIA						
34 Neutral	.07½	.07¾	.07½	.07¾	.07¼	.07½
34 Sundebloom Neutral	.08½	.08¾	.08½	.08¾	.08½	.08¾
36 Miners' Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
150, 3 color	.28¼	.28½	.28¼	.28½	.28¼	.28½
180, 3 color	.29¾	.30	.29¾	.30	.29¼	.30
200, 3 color	.32½	.33	.32½	.33	.32¼	.33
220, 3 color	.34¼	.34½	.34¼	.34½	.34¼	.34½
600, steam refined	.10¼	.10½	.10¼	.10½	.11¼	.11½
635, steam refined	.12¼	.12½	.12¼	.12½	.14¼	.14½
650, steam refined	.13¼	.13½	.13¼	.13½	.15¼	.15½
600, Pennsylvania flash	.18	.18½	.18	.18½	.19½	.20
630, Pennsylvania flash	.28½	.29	.28½	.29	.29½	.30
*550, E filtered	.18	.18½	.19½	.20	.18¾	.19
†600, E filtered	.19½	.20	.20	.20¼	.20	.20½
600, E filtered	.18	.18½	.18¾	.18½	.18¼	.18¾
600, D filtered	.25¼	.25¾	.25¼	.25¾	.25¼	.25¾
550, E filtered	.17½	.18	.17½	.18	.17½	.18
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.35½	.36	.35½	.36	.36	.36½
†122-124 White Crude Scale Wax	.03⅞	.04	.03¾	.04	.04¼	.04⅜
†124-126 White Crude Scale Wax	.03⅞	.04	.03⅞	.04	.04⅜	.04½

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—							
No. 2	color, 100 vis., pale oil	.07½	.08½	.07½	.08½	.08	.08½
No. 3	color, 200 vis., pale oil	.10½	.11½	.10½	.11½	.11	.11½
No. 3	color, 300 vis., pale oil	.11½	.12½	.11½	.12½	.12	.12½
No. 3½	color, 500 vis., pale oil	.13½	.14	.13½	.14	.14	.14½
No. 4	color, 750 vis., pale oil	.16	.16½	.16	.16½	.16	.16½
No. 5 to 6	color, 200 vis., red oil	.08½	.09½	.08½	.09½	.09	.09½
No. 5 to 6	color, 300 vis., red oil	.10	.11	.10	.11	.10½	.11
No. 5 to 6	color, 500 vis., red oil	.11½	.12½	.11½	.12½	.12	.12½
No. 5 to 6	color, 750 vis., red oil	.14½	.15½	.14½	.15½	.15	.15½
CALIFORNIA—							
130 vis., 2½-3	color	.10½	.11	.10½	.11	.10½	.11
200 vis., 2½-3	color	.11	.11½	.11	.11½	.11	.11½
300 vis., 3 -3½	color	.11½	.12	.11½	.12	.11½	.12

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

350 vis., 3½-4	color	.12	.13	.12	.13	.12	.13
400 vis., 3½-4	color	.13	.15½	.13	.15½	.13	.15½
Red Neutral:							
390 vis., 4½-5	color	.09½	.10½	.09½	.10	.09½	.10½
390 vis., 5 -6	color	.10½	.11½	.10½	.11½	.10½	.11½
490 vis., 5 -6	color	.12	.13½	.12	.13½	.12	.13½
500 vis., 4½-5	color	.13½	.14½	.13½	.14½	.13½	.14½
500 vis., 5 -6½	color	.12½	.13½	.12½	.13½	.12½	.13½
600 vis., 6½ plus	color	.13½	.14½	.13½	.14½	.13½	.14½

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Mar. 29	Mar. 22	Mar. 15
Gasoline, U. S. Motor, 58-60 437	.10½	.10½	.11
Kerosene, water white, 41-43	.07½	.07½	.08
*Fuel Oil, bunker "C," 14-16, per bbl.	1.75	1.75	1.75
*Fuel Oil, Diesel, 28-30, per bbl.	2.40	2.50	2.50
Gas Oil, 28 plus	.06	.06¼	.06¼
25 pale Paraffin Oil	.12	.12	.13
28 pale Paraffin Oil	.07½	.07½	.08
28 red Paraffin Oil	.13	.13	.13½
250 red Paraffin Oil	.12	.12	.12½
225 red Paraffin Oil	.11	.11	.11
200 red Paraffin Oil	.10	.10	.10
Refined Wax:			
120-122 a.m.p., per lb.	.04¼	.05	.05½
125-127 a.m.p., per lb.	.04⅜	.05¼	.05⅝
130-132 a.m.p., per lb.	.05	.05½	.06
135-137 a.m.p., per lb.	.05¼	.06	.06⅜
Petrolatum, in bbls.; carload lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03¾	.03⅜	.03⅜
Extra amber	.03¾	.03¾	.03¾
Cream	.05½	.05½	.05½
Lily white	.07½	.07½	.07½
Snow white	.08½	.08½	.08½

*Lighterage 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Mar. 29	Mar. 22	Mar. 15
Gasoline, U. S. Motor, 58-60 437, in cases	.2440	.2465	.2565
Kerosene, standard white, in cases	.1715	.1715	.1765
Kerosene, water white, in cases	.1815	.1815	.1865
600 steam refined cylinder stock, in bbls.	.19	.19	.20
635 steam refined	.21	.21	.22
650 steam refined	.23	.23	.23½
600 Pennsylvania flash	.27	.27	.28
630 Pennsylvania flash	.34	.34	.35
600 Warren E	.26	.26	.27
900 Oil City E	.24	.24	.25
Light 135	.45	.45	.46
Dark 135	.43	.43	.44

LOS ANGELES EXPORT PRICES

	Mar. 29		Mar. 22		Mar. 15	
Kerosene water white	.05¾	.06½	.05¾	.06½	.05¾	.06½
U. S. Motor Gasoline, 53-55 437 e.p.	.07¾	.08	.08	.08½	.08½	.09

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (March 14, 1927).....$1.00
Other fields .....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

*Carson County .....$ .95
*Hutchinson County ..... .95
Gray-Wheeler Counties...See gravity table

*Humble Oil & Refining Co., Magnolia Petroleum Co., Gulf Pipe Line Co. and Kay County Gas Co., March 14.

WEST TEXAS

*Iatan (Same as North Texas)
Crane-Upton-Crockett .....See gravity table

*Includes Howard County and Westbrook Fields. Kay County Gas Co. pays $1.16 for Howard County crude, effective March 12.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (March 17) $1.00
Bellevue (Feb. 24, 1927)..... 1.24
Urania (March 16, 1927)..... 1.00
East El Dorado (March 16)..... 1.00
Other fields .....See gravity table

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Gulf Refining Co. and Magnolia Petroleum Co.; Urania, Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop.)

†Grade A (March 14) $1.20
Grade B .....See gravity table
*Jennings, La. (March 14)..... 1.05
†Saratoga, Batson, Dayton (March 14, 1927)..... 1.20
**Markham March 14..... 1.00

*Gulf Pipe Line Co. †Sun Pipe Line Co. ‡Humble Oil & Refining Co. and other major buyers. **The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (March 14) $1.05
†Mirando (March 14) 1.00
Rockdale-Minerva (Milam County)... 1.25
*Thrall .....
Callihan (May 15) 1.75
Lytton Springs (Lockhart) See gravity table
Somerset .....See gravity table

*Posted by Magnolia Petroleum Co. Thrall prices same as north central Texas less 19½ cents per cwt. freight.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective March 14)

Rock Creek, Wyo. (March 12) $1.25
Salt Creek .....See gravity table
Big Muddy (March 12)..... 1.25
Mule Creek (February 23)..... 1.30
Grass Creek, light (March 12)..... 1.33
Grass Creek, heavy ..... .68
Elk Basin (March 12) 1.33
Lance Creek (March 12) 1.33
Poison Spider 1.00
Notches ..... .65
Rex Lake (February 23) 1.10
Osage 1.33
Lost Soldier (contract) (May 17)..... 1.60
Greybull-Torchlight 1.33
Hamilton Dome 1.35
Cat Creek (Mont.) 1.33
Sunburst (Mont.) (October 5)..... 1.35
Artesia (March 12) 1.00
Hogback (N. Mex.) (March 14)..... 1.30

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES
Joseph Seep Purchasing Agency
(Effective March 7)

Penna Grade Oil in New York Transit Line (New York) $3.15
Bradford District Oil in National Transit Lines (Pennsylvania) 3.15
Penna Grade Oil in National Transit Lines (Pennsylvania)..... 3.05
Penna Grade Oil in Southwest Pennsylvania Lines (West Virginia) 3.05
Penna Grade Oil in Eureka Pipe Line lines (Pennsylvania) 3.00

(Continued on Page 176)

CRUDE OIL GRAVITY PRICE TABLE

Gravity—	1 Okla., Kans., N. C. Tex., La.-Ark.	2 Smackover, Ark.	3 Stephens, Ark.	4 Wheeler and Gray Counties (Texas Panhandle)	5 Crane, Upton Pocket Counties (West Texas)	6 Salt Creek, Wyo.	7 Grade B & Light Crude (G. Coast)	8 Somerset, (South Central Texas)
Below 24	....	1.00	....	....	....	....	....	....
24 to 24.9	....	1.25	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	1.15	....
25 to 25.9	....	....	....	....	....	....	1.17	....
Below 26	....	....	....	....	.70	....	....	....
26 to 26.9	....	....	....	....	.72	....	1.19	....
27 to 27.9	....	....	....	....	.74	....	1.21	....
Below 28	****	....	1.00	....	....	....	....	....
28 to 28.9	1.12	....	1.02	.80	.76	....	1.23	1.12
29 to 29.9	1.14	....	1.04	.82	.78	1.14	1.25	1.14
30 to 30.9	1.16	....	1.06	.84	.80	1.16	1.27	1.16
31 to 31.9	1.18	....	1.08	.86	.82	1.18	1.29	1.18
32 to 32.9	1.20	....	1.10	.88	.84	1.20	1.31	1.20
33 to 33.9	1.22	....	....	.90	.86	1.22	1.33	1.22
34 to 34.9	1.24	....	....	.92	.88	1.24	1.34	1.24
35 to 35.9	1.26	....	....	.94	.90	1.26	1.37	1.26
36 to 36.9	1.28	....	....	.96	.92	1.28	....	1.28
37 to 37.9	1.30	....	....	.98	....	1.30	....	1.30
38 to 38.9	1.32	....	....	1.00	....	....	....	1.32
39 to 39.9	1.34	....	....	1.02	....	....	....	....
40 to 40.9	1.36	....	....	1.04	....	....	....	....
41 to 41.9	1.38	....	....	1.06	....	....	....	....
42 to 42.9	1.40	....	....	1.08	....	....	....	....
43 to 43.9	1.42	....	....	1.10	....	....	....	....
44 to 44.9	1.44	....	....	1.12	....	....	....	....
45 to 45.9	1.46	....	....	....	....	....	....	....
46 to 46.9	1.48	....	....	....	....	....	....	....
47 to 47.9	1.50	....	....	....	....	....	....	....
48 to 48.9	1.52	....	....	....	....	....	....	....
49 to 49.9	1.54	....	....	....	....	....	....	....
50 to 50.9	1.56	....	....	....	....	....	....	....
51 to 51.9	1.58	....	....	....	....	....	....	....
52 and above	1.60	....	....	....	....	....	....	....

Column 1—Oklahoma: Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., Magnolia Petroleum Co., March 12; Carter Oil Co. The Texas Company, March 14.

North Central Texas—(Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs [Southwest Texas], Iatan and Panola [Magnolia only], Currie, Nocona, Moran and Corsicana light): Magnolia, Texas, Prairie, Sinclair and Gulf, March 12; The Texas Company, Humble Oil & Refining Co., March 14.

Kansas—Prairie, Sinclair, Magnolia, March 12; Carter, Texas, March 14.

Arkansas and North Louisiana—(Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer and El Dorado only): Standard Oil Co. of Louisiana, March 14; The Texas Company, March 14; Magnolia Petroleum Co., Pine Island, Haynesville and Bull Bayou, El Dorado, March 14; El Dorado, March 14; Gulf Pipe Line Co., March 14.

Column 2—Standard Oil Co. of Louisiana, The Texas Company, Gulf, Atlantic, March 17, Magnolia Petroleum Co. (March 16) posted price of $1.00 for below 24 degrees and $1.15 for 24 and above. Louisiana Oil Corp. posted following prices effective March 16: Below 24, $1.00; 24 to 27.9, $1.15; 28 to 28.9, $1.17; 29 to 29.9, $1.19; 30 and above $1.21.

Column 3—Atlantic Oil Producing Co., March 14.

Column 4—Humble Oil & Refining Co. and Gulf Pipe Line Co., March 14.

Column 5—Humble Oil & Refining Co., Kay County Gas Co. and Gulf Pipe Line Co., March 14.

Column 6—Midwest Refining Co., March 12, 1927. All crude over 37 gravity, $1.30 per bbl.

Column 7—Humble Oil & Refining Co. and other major buyers (schedule ends "35 and above"), March 14, with exception of Magnolia Petroleum Co. which stops at 33 degrees gravity. Sun Pipe Line Co. posts 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., March 12.

****Prices for crude below 28 gravity: Oklahoma, Kansas and Texas, Magnolia Petroleum Co., $1.10, March 12, 1927; Arkansas, North Louisiana, March 14. Other companies, 2 cents less for each degree with exception of Humble Oil & Refining Co. which pays $1.12 for crude below 28 degrees gravity.

CALIFORNIA CRUDE PRICES
*Standard Oil Co.-Union Oil Co. (Effective March 11, 1926)

Gravity—	2 Long Beach Huntington Beach Richfield Brea-Olinda Rosecrans-Domiguez Torrance-Inglewood	3 Whittier La Habra Montebello	4 Kern River Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills Belridge	5 Coyote	6 Santa Fe Springs	7 Coalinga	8 Wheeler Ridge	9 Santa Maria Ventura Salt Lake
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.87	.85	.75	.85	....	.75	.75	.85
16°	.90	.85	.75	.85	....	.75	.75	.85
17°	.94	.85	.75	.85	....	.75	.75	.85
18°	.98	.86	.75	.86	....	.75	.75	.85
19°	1.04	.87	.75	.87	....	.75	.75	.85
20°	1.10	.89	.82	.90	.89	.79	.78	.90
21°	1.16	.91	.90	.98	.91	.86	.81	.97
22°	1.22	.94	1.00	1.06	.94	.93	.85	1.04
23°	1.28	.97	1.11	1.14	.97	1.00	.89	1.11
24°	1.34	1.01	1.22	1.22	1.02	1.07	.93	1.18
25°	1.40	1.05	1.33	1.30	1.08	1.14	.97	1.26
26°	1.46	1.09	1.44	1.33	1.16	1.21	1.01	1.32
27°	1.52	1.13	1.55	1.46	1.24	1.28	1.05	1.39
28°	1.58	1.17	1.66	1.54	1.32	1.35	....	1.46
29°	1.64	1.21	1.77	1.62	1.40	1.42	....	1.53
30°	1.70	1.25	1.88	1.70	1.48	1.49	....	1.60
31°	1.76	....	1.99	....	1.60	1.56	....	1.67
32°	1.84	....	2.10	....	1.72	1.63	....	1.74
33°	1.92	....	2.21	....	1.84	1.70	....	1.79
34°	2.00	....	2.32	....	1.96	1.77	....	1.85
35°	2.08	....	....	....	2.08	1.84	....	1.92
36°	2.16	....	....	....	2.16	....	....	....
37°	2.24	....	....	....	2.24	....	....	....
38°	2.34	....	....	....	2.34	....	....	....
39°	2.44	....	....	....	2.44	....	....	....
40°	2.54	....	....	....	....	....	....	....
41°	2.64	....	....	....	....	....	....	....
42°	2.74	....	....	....	....	....	....	....

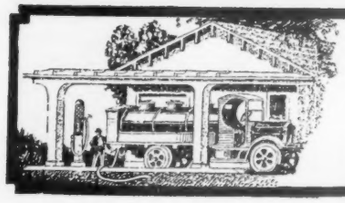
*Column 2—Long Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Brea-Olinda, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 3—Whittier and La Habra crudes, 14 to 22 degrees; Montebello, 14 to 30 degrees.

Column 4—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 6—Santa Fe Springs. Only Union Oil Co. posts below 34 degrees.

Column 9—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura, 14 to 35 degrees. Posted only by Union Oil Co.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, March 29.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Chicago dist.	16.0	18.0	...	13.0
Decatur, Ill.	16.2	18.2	...	13.1
E. St. Louis	15.2	17.35	...	12.2
Joliet	16.4	18.4	...	13.3
Peoria	16.2	18.2	...	13.1
Quincy	16.2	18.2	...	11.4
Davenport, Ia.	18.5	20.5	2.0	13.3
Des Moines	16.0	18.0	2.0	13.3
Keokuk	18.5	20.5	2.0	13.3
Sioux City	18.7	20.7	2.0	12.9
Duluth, Minn.	19.5	21.5	2.0	13.9
Minneapolis	17.2	19.2	2.0	13.9
LaCross, Wis.	19.2	21.2	2.0	14.0
Milwaukee	18.1	20.1	2.0	12.9
Madison	18.3	20.3	2.0	13.1
Detroit, Mich.	18.8	20.8	2.0	14.7
Grand Rapids	18.7	20.7	2.0	14.6
Saginaw	18.9	20.9	2.0	14.8
Evansville, Ind.	19.0	21.0	3.0	14.0
Ft. Wayne	19.4	21.4	3.0	14.4
Indianapolis	19.2	21.2	3.0	14.2
S. Bend	19.4	21.4	3.0	14.4
Fargo, N. D.	20.9	22.9	2.0	15.9
Huron, S. D.	20.5	22.5	3.0	14.9
Sioux Falls	19.3	21.3	3.0	14.4
*K. C., Mo.	18.0	20.0	3.0	11.6
*Springfield	18.8	20.8	3.0	12.5
*St. Louis	17.6	19.9	2.5	12.3
*St. Joseph	18.5	20.5	3.0	12.2
Wichita, Kans.	17.8	19.8	2.0	13.0
Bartlesville, Ok.	17.8	19.8	3.0	11.5

NAPHTHAS

	Tank wagon	Tank car
Oleum spirits	18.0	13.6
V. M. & P. naphtha	20.0	15.5
Cleaner's naphtha	20.0	15.5
Stanisol	21.0	....

Tankwagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL

Less than 100 gallons	10.0
100 to 799 gallons	9.0
800 or more gallons	8.6

Tankwagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district where discount applies only to dumps of 100 gallons. Kerosene subject to 1 cent discount on dumps of 50 gallons or more.

In addition the following quantity discount schedule is in effect on monthly tankwagon deliveries of gasoline 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. In the Chicago district purchases of 750 to 2,000 gallons a month discounted one-half cent; and, 2,000 to 6,000 gallons, three-quarters cent. If the quantity bought during the year is 12 times the monthly agreed purchases the discount is paid or credited on the entire quantity less monthly payments.

Monthly service station deliveries of 200 gallons or more, and annual deliveries of 2,400 gallons or more are discounted 2 cents.

*State tax 2 cents; remainder city tax.

SOUTHWESTERN DISTRICT

*Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Dallas, Tex.	15.0	19.0	3.0	15.0
Fort Worth	15.0	17.0	3.0	13.0
Houston	16.0	19.0	3.0	15.0
San Antonio	15.0	18.0	3.0	11.0
El Paso	17.0	19.0	3.0	16.0
Texarkana	15.0	18.0	3.0	15.0
Muskogee, Ok.	16.0	19.0	3.0	10.0
Okla. City	16.0	19.0	3.0	10.0
Tulsa	16.0	19.0	3.0	10.0
Little Rock	17.0	20.0	4.0	12.0
Ft. Smith, Ark.	17.0	20.0	4.0	12.0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, ½c; over 2,000 gallons, ¾c; over 3,000 gallons, 1c; over 4,500 gallons, 1¼c; over 6,063 gallons, 1½c; over 9,000 gallons, 1¾c; over 10,000 gallons, 2c. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1c; over 300 gallons a month, 1¼c; over 400 gallons, 1½c; over 500 gallons a month, 1¾c; over 600 gallons, 2c. The same rule applies for annual purchases as in the tankwagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
*New Orleans	15.5	18.5	3.0	14.0
Alexandria	15.0	18.0	2.0	14.0
Baton Rouge	14.0	17.0	2.0	12.5
LaFayette	15.0	18.0	2.0	13.5
Lake Charles	15.5	18.5	2.0	14.0
Shreveport, La.	14.0	17.0	2.0	13.0
Memphis, Tenn.	17.0	20.0	3.0	14.0
Chattanooga	19.5	22.5	3.0	15.0
Knoxville	19.5	22.5	3.0	15.0
Nashville	18.0	21.0	3.0	15.0
Bristol	19.0	22.0	3.0	14.0
Lit. Rock, Ark.	17.0	20.0	4.0	12.0

*Tax of 3c includes city tax of 1c.
*Louisiana kerosene prices include 1-cent state tax and 1 cent parish tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
All Ohio points	20.0	22.0	2.0	15.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Atlanta, Ga.	21.0	24.0	4.0	17.0
Augusta	21.0	24.0	4.0	16.0
Macon	21.0	24.0	4.0	17.0
Savannah	21.0	23.0	4.0	16.0
Birm'ghm, Ala.	21.0	24.0	4.0	16.5
Mobile	20.0	23.0	4.0	16.0
Montgomery	22.0	25.0	5.0	17.5
Clarksd'le, Miss.	19.0	22.0	4.0	14.5
Jackson	19.0	22.0	4.0	15.5
Natchez	18.5	21.5	4.0	15.0
Gulfport	20.5	23.5	4.0	15.0
Vicksburg	18.5	21.5	4.0	15.0
Jack'ville, Fla.	19.0	22.0	4.0	15.0
Miami	21.0	24.0	4.0	16.5
Pensacola	20.0	23.0	5.0	16.0
Tampa	19.0	22.0	4.0	15.0
Covington	21.0	24.0	5.0	16.0
Louisville	20.0	23.0	5.0	16.0
Lexington, Ky.	20.0	23.0	5.0	16.0

In addition to the state tax of 2c on gasoline, Montgomery has city tax of 1c on gasoline and ½c on kerosene. Prices in Georgia include ½c inspection fee on gasoline and kerosene; in Florida, an inspection fee of 0.125c; in Alabama, an inspection fee of ½c on kerosene only. Pensacola tax includes 1c city levy. Gulfport tax includes privilege tax of 2c in addition to state tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Pittsburgh, Pa.	18.0	*23.0	...	15.0
Philadelphia	17.0	21.0	...	15.0
Scranton	18.0	*23.0	...	15.0
Allentown	18.0	*23.0	...	15.0
Altoona	18.0	*23.0	...	15.0
Erie	18.0	*23.0	...	16.6
Dover, Del.	20.0	23.0	2.0	15.0
Wilmington	20.0	23.0	2.0	15.0
Spring'd, Mass.	21.0	23.0	...	17.0
Worcester	21.0	23.0	...	17.0
Boston	21.0	23.0	...	15.0
Providence, R.I.	22.0	24.0	1.0	17.0
Hartford, Conn.	23.0	25.0	2.0	17.0
New Haven	23.0	25.0	2.0	17.0

*Includes tax of 2 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Atlantic City	17.0	...	...	14.0
Newark, N. J.	17.0	19.0	...	14.0
Annapolis, Md.	19.0	...	2.0	14.0
Baltimore	19.0	22.0	2.0	14.0
Cumberland	19.0	22.0	2.0	14.0
Washington	19.0	22.0	2.0	12.0
Danville, Va.	21.5	...	4.5	14.0
Norfolk	21.5	24.5	4.5	14.0
Petersburg	21.5	24.5	4.5	14.0
Roanoke	21.5	24.5	4.5	14.0
Richmond	21.5	24.5	4.5	14.0
Charleston, W. Va.	20.5	23.5	3.5	14.0
Keyser	20.5	...	3.5	14.0
Parkersburg	20.5	23.5	3.5	14.0
Wheeling	20.5	23.5	3.5	14.0
Charlotte, N. C.	21.0	24.0	4.0	14.0
Hickory	21.0	24.0	4.0	14.0
Mt. Airy	21.0	24.0	4.0	14.0
Salisbury	21.0	24.0	4.0	14.0
Charl'stn, S. C.	22.0	25.0	5.0	14.0
Columbia	22.0	22.0	5.0	15.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Albany, N. Y.	20.0	22.0	...	16.0
*New York	20.0	24.0	...	16.0
Buffalo	19.0	22.0	...	14.0
Rochester	19.0	22.0	...	14.0
Syracuse	20.0	22.0	...	16.0
Boston, Mass.	20.0	22.0	...	15.0
Augusta, Me.	23.0	27.0	3.0	16.0
Manchester, N. H.	22.0	24.0	2.0	16.0
Burlington, Vt.	22.0	24.0	2.0	16.0

*Price in steel barrels.

PACIFIC COAST DISTRICT

Standard Oil Co. (California

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
San Francisco	14.0	17.0	2.0	15.5
Los Angeles	13.5	16.5	2.0	15.5
Fresno	14.0	17.0	2.0	17.5
Reno, Nev.	20.0	23.0	4.0	19.0
Portland, Ore.	15.0	18.0	3.0	16.5
Seattle, Wash.	14.0	17.0	2.0	16.5
Tacoma	14.0	19.0	2.0	16.5
Spokane	18.0	21.0	2.0	20.5
Phoenix, Ariz.	20.0	23.0	3.0	20.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Omaha	16.25	19.25	2.0	13.25
McCook	19.75	21.75	2.0	14.75
Norfolk	18.0	20.0	2.0	13.75
N. Platte	19.75	21.75	2.0	14.50
Scottsbluff	19.25	21.25	2.0	14.00

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Denver, Colo.	17.0	19.0	2.0	15.5
Pueblo	17.0	18.0	2.0	15.5
Grand Junction	20.5	22.5	2.0	19.0
Casper, Wyo.	18.0	20.0	3.0	14.0
Cheyenne	20.0	22.0	3.0	15.5
Butte, Mont.	22.0	22.0	3.0	19.0
Helena	22.0	24.0	3.0	19.0
Salt Lake, Utah	21.0	23.0	3.5	17.0
Boise, Idaho	23.5	25.5	4.0	19.0
Twin Falls	23.5	25.5	4.0	19.0
Albuquerque, N. M.	22.0	25.0	5.0	18.0

TANK WAGON CHANGES

March 14—Standard Oil Co. of Louisiana reduced tank wagon and service station price on kerosene 1 cent at Chattanooga, Tenn., and reduced the tank wagon and service station price on gasoline 1 cent at Chattanooga and Knoxville, Tenn.

March 19—Standard Oil Co. of Kentucky reduced the kerosene tank wagon and service station price 1 cent in Georgia, Alabama, Florida and Kentucky and reduced gasoline 1 cent in Mississippi.

March 19—Standard Oil Co. of California reduced gasoline tank wagon and service station prices 2 cents in entire territory. This change had previously been reported as being effective in California only.

March 23—Continental Oil Co. reduced gasoline tank wagon and service station price 2 cents in Colorado, Wyoming, Utah and Idaho, 1½ cents in Montana, and 1 cent in New Mexico.

March 23—Magnolia Petroleum Co. reduced tank wagon and service station price on kerosene and gasoline 1 cent at San Antonio, Tex., and reduced gasoline 1 cent in Texarkana.

March 26—Standard Oil Co. of Louisiana increased the tank wagon and service station prices on gasoline 2 cents in New Orleans.

CRUDE PRICE CHANGES*

March 12—Grayburg Pipeline Co. and the Pioneer Oil & Refining Co. posted Somerset, Texas, crude prices with 28 to 28.9 gravity oil at $1.12, advancing the price 2 cents for each degree to $1.32 for the oil 38 gravity or above.

March 14—The Midwest Refining Co. reduced Hogback crude to $1.30 per barrel.

*Changes not previously reported.

TESTING NEW PROCESS TO MAKE CARBON BLACK

SHREVEPORT, La., Mar. 28.—All papers and reports on the tests of the new process for the manufacture of carbon black have been placed in the hands of Dr. V. I. Irion, Commissioner of the Louisiana Conservation Department at New Orleans, it has been announced at offices of the department here.

The tests of the new process, which it is claimed, may revolutionize the making of carbon black by a greater conservation of the gas, were started the early part of the month at the experimental plant of the New Process Carbon Black Co., Inc., at Guthrie. They were under the supervision of Prof. C. S. Williamson of New Orleans, chemical engineer of Tulane University, assisted by representatives of the State Conservation Commission.

C. A. Barbour, Jr., of Monroe, who with associates, including Theodore Grunewald of New Orleans, owns the patent rights, claims that the new system will increase the production of carbon black from 300 to 500 per cent.

PENNSYLVANIA MARKET WAS GENERALLY WEAK

OIL CITY, Pa., Mar. 26.—The refinery market in the Pennsylvania territory was generally weak during the past week, gasoline especially being at the lowest mark in years.

Refiners and jobbers in this territory now believe the gasoline situation is clearing up. During the past week one of the biggest refiners of crude in Pennsylvania met Mid-Continent prices and was reported to have sold motor gasoline for less than 9 cents. This for the time being broke the market, some of the refiners following to as low as the 9-cent mark. However, during the past few days this particular refinery has withdrawn its lowest prices from the market and this has led to the idea that prices have hit bottom here. Demand for gasoline at the refineries is expected to pick up soon. Actual consumption has been large for this time of the year. March has been an unusually fine month for motoring for this early in the spring and traffic has been heavy on the improved roads. Of course, travel on the dirt roads is out of the question yet.

Kerosene is a little softer than it has been largely on account of the general conditions prevailing in the oil industry. The movement will pick up some in the immediate future.

Fuel oil is in about the same condition as has prevailed but demand is off a little. Neutrals continue strong. Cylinder stocks are unchanged. Bright stocks are weaker. There has been no demand for wax which is softer.

CRUDE OIL PRICES

(Continued from Page 175)

Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	$3.00
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) March 16	1.40
Corning 35-cent grade oil in Buckeye Pipe Line Co.'s line (March 17)	1.45
Corning 25-cent grade oil in Buckeye Pipe Line Co.'s lines (March 17)	1.35
Somerset Oil in Cumberland Pipe Lines (Kentucky) March 16	1.10
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky)	.85
Keister (Pennsylvania)	1.70

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective March 14)

Lima	$1.71
Wooster	1.77
Illinois	1.40
Indiana	1.40
Princeton	1.40
Plymouth	1.33
Waterloo (Nov. 17, 1926)	1.35
*Western Kentucky	1.40
†Cumberland, Barren, Clinton and Monroe Counties, Kentucky (March 16)	1.10
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (March 16, 1927)	1.10
†Clay County, Tennessee (November 18)	2.10
§Oil Springs (Canada)	2.10
§Petrolia (Canada)	2.25

*Posted by and Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
§Posted by Imperial Oil Co., Ltd.

MEXICO

(Effective May 13)

*Tuxpam light (f.o.b. Mex. ports)	$1.80
†Panuco heavy (f.o.b. Mex. ports)	1.30
Tuxpam (New York)	2.10
Panuco (New York)	1.80

*Plus 32.328c tax. †17.631c tax.

This SIGN will tell a motorist you have *two reasons* why he should drive into your station.

1st *You have a motor oil of unexcelled quality at a right price.*

2nd *You have a sound, common-sense method of selling it.*

EVERY Authorized Opaline Dealer receives our Recommendation Index (based on the Sinclair Law of Lubrication) on which are listed cars, trucks, buses and taxis—and showing when the different grades of Opaline Motor Oil should be used. The Dealer asks the motorist how many miles his car has been driven—and then gives the motorist the correct grade of Opaline to fit the degree of wear in his engine, and seal its power.

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TESTS IN CALIFORNIA EXTEND RANGE OF OILS

(Continued from Page 172)

base" oil is mainly composed of hydrocarbons with relatively high boiling points, low specific gravities, and low viscosities. A "naphthene-base" oil is composed of hydrocarbons with relatively low boiling points, high specific gravities and high viscosities. Probably different series of hydrocarbons predominate in different oils, but few data are available to show what series are present or in what proportions in any commercial lubricating oil. Such analyses as have been made, however, indicate the predominance of cyclic compounds—in other words, "paraffin-base" lubricants contain paraffin hydrocarbons only as minor impurities. The chemistry of petroleum lubricants is a subject that needs investigation.

Although from the standpoint of the chemist the subject is obscure, practical experience has shown that for most purposes suitably refined oils of either base may be used with equal satisfaction. Certain differences in behavior do exist, however, and in selecting an oil for any particular purpose it is important that proper specifications, based on actual service needs, be used; that is, a specification that would cover a satisfactory paraffin-base oil might not insure good service if applied to a napthene-base oil, and vice versa.

Furthermore, the requirements for different types of service differ. One can not assume that because an oil must have certain characteristics for one class of service it must also have the same characteristics for another class of service. That oil for use in steam turbines will be satisfactory in proportion to its resistance to emulsification with water has long been recognized. To manufacture an oil for use in steam turbines requires especial care and skill; generally, therefore, a non-emulsifying turbine oil commands a higher price than an oil that emulsifies easily. The assumption has often been made, however, that oils that resist emulsification are also better for other uses; for instance, are superior lubricants for automotive equipment, such as motor cars and trucks. That this assumption is not necessarily true is shown by the tests performed by the Bureau of Mines.

EFFORTS FOR RELIEVING THE OIL SITUATION

(Continued from Page 33)

though its advantages in many respects are considerable.

Developing Demand

The marketers of petroleum products can do much to relieve such a situation as now exists in the oil business by developing to the limit new uses for petroleum products other than gasoline, and thus obtaining a better price for them. Needless to say, this is continually being done. It is apparent, however, that such effort has not reached a degree of success to do much good under the present circumstances. The development of the oil burner is one example of the endeavor to create new markets for oil, and it promises ultimately great success. While gasoline is admittedly the most profitable product of crude petroleum, the importance of the other products cannot be lost sight of. Inasmuch as these other products constitute a greater gallonage, combined than gasoline, the prices at which they sell have a considerable part in fixing the value of crude petroleum.

The importance of combined efforts on the part of all branches of the oil industry to reduce operating costs is emphasized by the fact that any benefit to the refiner of lower crude oil prices is almost wholly offset by similar losses in gasoline prices. This is strikingly exemplified in the present situation, where not only overproduction of crude oil, but overproduction of gasoline in itself, promises to lower still further the margin between crude oil and gasoline prices. While small economies in operation on the part of individual companies appear unimportant, when multiplied throughout the industry they often bring surprisingly favorable results.

Situation Not Hopeless

The situation in the oil industry now will not seem so hopeless when the recent history of some other industries is considered. No doubt the downward trend in oil prices has been felt more acutely in contrast with the general prosperity of the country as a whole. But the prosperity of some of the other industries is due largely to factors which might equally apply to the oil business.

The railroad industry is an example of this. When the roads were returned to private management after the war, a great many of them were operating at a loss. Some of these now are on a sound earning basis. Although their traffic has increased heavily, it will be found the increase in net earnings has been relatively greater than the increase in gross.

The automobile industry a few years ago was considered to be facing a crisis in its development, as it was thought the saturation point had been reached. The development of the closed car, a comparatively simple matter, practically revolutionized the industry and gave it a new lease of life. This, combined with the attainment of low operating costs through standardization and large scale production, has put the industry as a whole on the soundest and most prosperous basis yet achieved, in the face of declining prices for cars.

Favorable to Recovery

Conditions at present are, in fact, favorable for a speedy recovery in the oil industry provided the proper corrective measures are applied in all branches of the industry. The present era of prosperity in this country is not due to a shortage of commodities but to many factors which are equally beneficial to the oil industry.

The petroleum industry is certainly not free from all efforts at political interference, but with a conservative administration at Washington, it can probably fare no better than it does now. There is a large amount of capital available for expansion purposes or for any legitimate use to which it can be put. Consumption of oil is, or has been up to the present time, increasing steadily. And, in view of the fact that inflation in general industry is absent, the possibilities of a slump in industrial activity of more than passing nature is slight.

There are other factors, too, which are worthy of consideration from a long-range viewpoint. The production of crude oil in the United States can certainly not keep on increasing at the rate which it has maintained in the last few years very much longer, whatever the incentive. The present rate of output is approximately 900,000,000 bbls. annually. In 1926 the output was about 767,000,000 bbls.; only ten years ago (1917) it was 335,000,000 bbls.

In the 10-year period ended December 31, 1926, the production of crude oil in the United States was 5,512,000,000 bbls. This was an increase of 3,235,000,000 bbls., or 142 per cent, over the output of the preceding 10 years. In order to maintain this rate of increase in the coming 10 years the industry will have to produce 13,339,000,000 bbls, or a daily average for the 10-year period of 3,654,000 bbls.

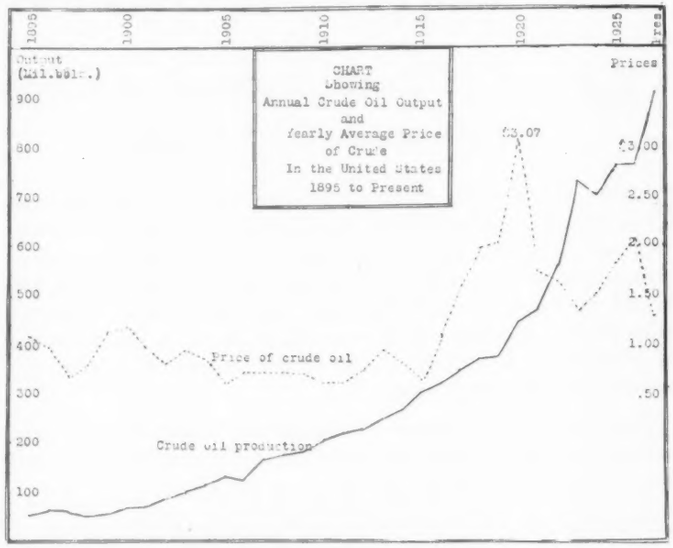
Consumption to Help

Nor does the oil industry have necessarily to await a decline in crude oil production for prosperity. Experience in the past shows that prosperity comes when consumption exceeds production, irrespective of what direction production happens to be going.

The chart which accompanies this shows that in a period when the average price of crude petroleum in the United States rose from 64 cents to $3,07 (1915 to 1920) the production of crude oil in the country increased each year as follows:

	Barrels
1915	281,000,000
1916	301,000,000
1917	335,000,000
1918	356,000,000
1919	378,000,000
1920	443,000,000

It will be pointed out that there was a heavy withdrawal from storage during the period from 1915 to 1918, due to an abnormal war demand, which is in contrast to the recent additions to storage. But in view of the tremendous possibilities of consumption it is also possible that the next two or three years may bring about a similar decline in stocks, which will be hastened if the production trend is reversed.



INCREASED WILDCATTING COST DUE TO DEPTH

(Continued from Page 31)

ceding 1925, the percentage averaged under 22 per cent.

More Holes Dry

In view of the improved methods of oil discovery and even in spite of the extensiveness of the wildcatting campaign of the past two years, it would be logical to expect a declining percentage of dry holes in the recent years. The fact that the opposite has been the case can probably be attributed in part to the wildcatting methods that have developed.

The conclusion is tenable that when a dry hole can be financed in advance it will probably be drilled. As a matter of fact, there is probably much more care exercised in drilling in wildcat territory than ever before. There is little drilling nowadays that is not based on geological assumption that there is some chance of getting oil. But the financing methods of the past two years have undoubtedly resulted in the drilling of wells which under the old and more conservative methods would never have been drilled.

The upward trend of the dry hole proportion is shown in the following table:

Well Completions

	Total	Dry Holes	Per Ct. Dry
1926	29,319	7,965	27.2
1925	25,823	6,735	26.3
1924	21,894	4,950	22.6
1923	24,438	5,883	24.1
1922	24,658	5,329	21.6
1921	21,775	5,012	23.0
1920	33,972	7,375	21.7
1919	29,079	5,756	19.8
1918	25,523	5,733	22.5
1917	23,104	4,718	20.4
1916	24,453	3,993	16.3

It is noted that in 1920, which marked one of the most intensive wildcatting campaigns in the history of the industry and during which period a record of wells was completed, the percentage of dry holes was only 21.7 per cent. While the 1920 campaign was widespread, in this respect it only approximately approached the wildcatting of recent years which fact might account somewhat for the relatively low percentage of dry holes that year and the higher percentages in recent years.

However, last year was notable for successes in wildcat operations, particularly in the Texas Panhandle, and considering this fact the high percentage of dry holes recorded looms correspondingly large. Of the total completions of 831 wells in the Texas Panhandle, only 35 were dry holes, or 4.2 per cent. In North Central-West Texas the other side of the picture is shown, with this division's percentage of dry holes, 37 per cent.

W. C. Teagle's Views

In a statement issued on his return to New York from a trip through the Mid-Continent, W. C. Teagle, president of the Standard Oil Co. of New Jersey, declared that with a little thought production costs could be materially reduced. The present period of overproduction, he said, ought to bring this important fact forcibly to the attention of every thoughtful operator. He said that in the past few years the average cost of producing oil has been steadily increasing and he listed the causes as follows:

(1) Payment of excessive bonuses for acreage.

(2) Drilling of too many wells in proven fields.

(3) Too much wildcatting.

"There is still too much crude oil being currently produced," he said, "and there is too much crude oil and finished gasoline being held in storage. Of course, it is too soon to expect a radical change in the volume of crude oil produced, for the reason that a large number of wells which had started drilling before recent price reductions were made are being carried on to completion.

"Aside from the large current daily production both in the Seminole and West Texas areas, there is considerable production which is shut in, but the actual amount is difficult to estimate. The West Texas district, considered as a whole, will produce a great deal of crude oil, for it covers a large area. This oil has some sulphur content, but in spite of this drawback this area will be a big factor in any consideration of the future available supply of crude."

Production Costs Rising

Discussing the price situation Mr. Teagle said: "In the past few years the average cost of producing oil has steadily increasing. This has been due to the payment of excessive bonuses for acreage, the drilling of too many wells in proven fields and too much wildcatting. With a little thought production costs could be materially reduced. The present period of overproduction ought to bring this important fact forcibly to the attention of every thoughtful operator. Producers should realize that until there has been a material draft on existing stocks their own best interests will be served by limiting wildcatting operations and devoting more attention to the problem of reducing production costs.

"These stocks of some 530,000,000 bbls. should be reduced, regardless of the fact

that for the most part the oil in storage costs more money than current production. It is estimated that, adding the yearly cost of carrying these stocks to the price as originally paid, the average cost of oil now in storage is about $2.30 a barrel. It is a great economic mistake to regard this oil as locked away until new production is selling for as high a figure.

Would Use Existing Stocks

"The industry should forget the accumulated charges on oil carried for several years and should use these stocks to make up any deficiency in current supply. In the long run the producer will be much better off if he suspends drilling projects that do not have to be carried through within a given time, until a very substantial draft has been made upon our reserves in storage. The industry is meeting an annual bill of around $130,000,000 for the privilege of carrying these stocks above ground. There is less need of large reserves now than was the case a few years back, because of the greatly increased amound of gasoline represented by each barrel of crude now in storage."

CHANGES RESULTING FROM OVERPRODUCTION

(Continued from Page 36)

centage of high-grade oil at is disposal for refining purposes. If any company can produce 40 per cent gasoline from the 100,000 bbls. of crude it may run per day, without cracking, and this gasoline yield is sufficient to meet the demands of its customers, even allowing for a greater consumption, that company will not resort to special refining methods to obtain a higher yield, as to do so would be a waste of money. This concern will be producing gasoline at what would apparently be a minimum cost under any method now known to the industry. Although other companies may not have a correspondingly large supply of high-grade crude at their disposal, they will be forced to meet any price which the company having the lowest cost of production can set.

The almost immediate effect of the current heavy output of high-grade crude oil on the gasoline market in the United States is now being witnessed by the industry. The Mid-Continent market is at an extremely low level. The crude situation perhaps has not yet (at this writing) had time to affect more remote markets with its fullest force, but if production keeps up, undoubtedly, the tank wagon markets will be readjusted to a level corresponding with the Mid-Continent, freight considered, which might mean tank wagon cuts throughout the country of 3 and 4 cents a gallon beyond the present.

It must be recognized that everything as to the effect of the high-grade oil output depends on the amount of production. Were Seminole and adjacent fields now at their peak, a discussion of any widespread effect on the general market would be unnecessary. However, production experts, whether with or without justification, predict that Seminole will produce above 400,000 bbls. a day before it reaches a peak, or perhaps even more. In the event that this output of high-grade does continue to increase, the obvious conclusion is that its effect on the economic situation will last perhaps throughout 1927.

Fuel Oil Position

It might be thought that with the pressure on "cracking" stock lifted, fuel oils would be more plentiful and lower in prices. This would be so were it not for the fact that consumption of fuel oils is increasing, and that production of some low-grade oil fields, such as those of Mexico, is falling off.

In addition, fuel oil is especially sensitive to price changes, in as much as it competes with coal. The lowering of fuel oil prices to any extent would, in the opinion of the trade, result in increasing the consumption almost at once.

There is no question but that an overproduction of high-grade crude oil is about the most serious development the oil business could face next to a serious drop in consumption of gasoline. In as much as high-grade oil, such as that produced at Seminole, is so readily adapted for refining makes its affect that much more rapid and decided. Gasoline, the mainstay of the oil industry from the viewpoint of profits, is affected, especially, by the output of a crude which contains a large yield of that product. Lower prices also reduce the value of inventories, and cause chargeoffs which further cut into the margin of profits.

To eastern oil men it seems unfortunate that the production of crude oil cannot be more readily regulated, but, on the other hand, some of them express the opinion that the best means of production regulation is the price, and predict that further drastic price cutting will be the only means of getting the industry down to a level, from the point of view of production of raw materials, where a more favorable trend in prices may be forced.

LATE FIELDS

(Continued from Page 41)

field a quarter mile south and a half mile east. It had the Wilcox sand 4,140-49 feet, and made 5,850 bbls. the first day.

The Seminole Field produced 331,450 bbls. for the 24 hours ending Tuesday morning of this week.

In the Earlsboro region, the Gypsy Oil Co.'s No. 2 State Land, NW cor. NE Section 16-9-5, is a dry hole in the Wilcox sand and has caused a great disappointment. It had the sand 4,246-4,256 feet with water. This is one location west of the Wilcox sand discovery well.

The Wilcox sand has been tapped by Magnolia Petroleum Co.'s No. 1 Holmeley, SW cor. NE SE Section 11-9-5, and at 1 foot in with a total depth of 4,280 feet, the hole is full of oil and slopping over. This well is 2 miles northeast of the first well ever drilled in this section, and the Wilcox sand is calculated to be 10 feet higher than the Earlsboro deep region.

ARKANSAS

SHREVEPORT, La., Mar. 29.—Blowing in unexpectedly late Monday night, The Texas Company's No. 5 Herndon, Section 14-21-15, Pine Island district of Caddo County, caught fire and was still out of control late Tuesday. The well is estimated at between 20,000,000 and 30,000,000 feet of gas, one of the largest in the field. It was drilling below 3,540 feet, where 8¼-inch casing was cemented, when it blew in. R. C. Stewart, general manager of this division of The Texas Company, who was at the well when it blew in, was slightly burned about the hands and face along with several drillers. A battery of boilers was being set up Tuesday to apply steam to the burning gas.

NORTH TEXAS AND PANHANDLE

FORT WORTH, Tex., Mar. 29.—Humble Oil & Refining Co.'s No. 2 University, SW cor., Section 38, Block 30, Crane County, an offset to Simms, Atlantic and Eastland Oil Co. gushers, came in Monday flowing 330 bbls. an hour at 2,910 feet. Top of pay was 2,880 feet and it started flowing 278 bbls. hourly at 2,905 feet.

J. K. Hughes Development Co.'s No. 3 Shore, in Fry district, Brown County, one location south and east of the Forsythe well, was deepened 7 feet yesterday to 1,311 feet and increased to 120 bbls. an hour.

In Shackelford County, Wentz Oil Corp.'s No. 4 Proctor, Section 166, about 6 miles west of Cork Ranch Pool, has 500 feet of oil in the hole from sand topped at 1,485 feet and drilled 3 feet in.

In Pecos County, Humble Oil & Refining Co.'s No. 1 Rheinstrom, Section 30, Block 2, topped lime at 1,955 feet.

In the Panhandle, Delmar Oil Co.'s No. 1 Lewis, Section 115, Block 4, Carson County, flowed 160 bbls. the first 24 hours from granite wash at 3,184-90 feet, total depth, 3,190 feet. Piney Oil & Gas Co.'s No. 2 Clark, Section 58, Block 24, Wheeler County, has 1,500 feet of oil in the hole from sandy lime at 2,350 feet and is shut down for storage.

GULF COAST

HOUSTON, Tex., Mar. 28.—A permit to drill in Cow Bayou in the Orange Pool has been granted to R. B. Goree and three other residents of Orange.

J. M. McCarty and others of Oil City, Pa., No. 1 Brown, west of Groesbeck, set casing around 2,900 feet to drill into the Woodbine sand for a test. Two feet of sand was cored at 2,999 feet. The same parties have a derrick up for No. 2 Brown, one-half mile southeast of No. 1.

The Texas Company's No. 1 Stother, 1 mile west of the McCarty test, missed the chalk at 2,917 feet and has upset theories regarding the fault line. Zoch and others' No. 1 Maddock got the chalk at 2,640 feet and is now drilling below 2,870 feet.

Humphreys Corp.'s No. 1 West Schenck, on the south flank of the Blue Ridge Dome, was worked over and is putting out 400 bbls. of pipe line oil.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Mar. 28.—Houston Oil Co. has purchased Kleberg County Oil & Gas Co.'s 7-mile gas pipe line from the Kingsville Field, Kleberg County, and the distributing system in Kingsville, and will develop 1,500 acres in the field on fifty-fifty basis. The leases are surrounded by oil and gas production. Houston Oil Co.'s main gas line passes 50 miles from the field. The purchase gives it much needed additional gas supply for Houston, Tex. The leases are offset by an 80,000,000-foot gas well recently brought in by the Humble company.

BOGGY CREEK FIELD

JACKSONVILLE, Tex., Mar. 29.—The Humble Oil & Refining Co.'s No. 1 Elliott and Clark, 14 miles west of Jacksonville, Cherokee County, which came in March 21 making 70 bbls. an hour at 3,847 feet through a one-quarter-inch choke, was opened for a short period Friday and flowed 100 bbls. an hour with three-eighths-inch choke and again shut in for storage. The rock pressure was 525 pounds.

The territory will be known as the Boggy Creek Field. The Humble Oil & Refining Co. is starting another well located on the Earle & Ragsdale land, 800 feet north and 600 feet east of the producer and some 3,500 feet south of No. 1 Earle & Ragsdale, which was abandoned in salt at 2,612 feet. The abandoned hole is only 1,800 feet from the discovery well. No. 1 Temple Lumber Co. was a failure at 3,447 feet, located three-quarters of a mile northeast of the discovery well.

The Humble has two 1,000-bbl. tanks full from its Cherokee County wildcat. Four more 1,000-bbl. tanks are completed. The casinghead gasoline content is two gallons per 1,000 feet of gas. A preliminary survey has been made for a line from the well to the I. G. & N. Railway, 4 miles to the south where a loading rack will probably be built.

MARION HENSHAW DIES

Marion Henshaw, aged 83 years, one of the first oil producers on Oil Creek in Pennsylvania, died Monday afternoon at his home in Butler, Pa., following an illness of only a few days.

GERMANY DROPS GASOLINE TAX

Acting Commercial Attache D. P. Miller, at Berlin, cables that plans for taxation of automotive gasoline have been definitely abandoned in Germany.

Captain Constantin Dies in Tulsa; Had Varied Experience

Capt. Eugene P. Constantin, aged 64, president of the Tonkawa Refining Co., died Sunday at his residence in Tulsa,

Capt. E. P. Constantin

after an illness of several weeks. Death was due to internal hemorrhages.

Captain Constantin had been identified with the petroleum industry for more than 20 years, and had been a resident of Tulsa since 1909. His life's history reads like a page out of a book, and few men were privileged to enjoy the rounded out life which was his. He was born at Cuvier, France, a town close to the border of Switzerland, and came to America at an early age settling in New Orleans, La., where he became engaged in the sugar industry. Gradually expanding his interests to navigation, he was made master of a Mississippi River boat in his early twenties, and obtained his title of captain. After several years as master, he and his brothers purchased control of the navigation company.

Forsaking navigation, he entered the banking business and was elected president of the Bank of Lockport, La., in 1900, in which capacity he remained until 1908, when he became actively interested in the petroleum industry. During his banking experience at Lockport, he had become interested in oil through the purchase of securities, and determined to make petroleum his real work.

His success is known to everyone familiar with the industry and development of the Mid-Continent Field, and though his start was modest, his great vision resulted in the surprising expansion of his interests. He constructed one of the first refineries built at Tulsa, and although the plant had a small capacity it formed the nucleus of what later became the Constantin Oil Co.

Captain Containtin's boldest business venture was made in 1918 when in company with E. E. Schock and a few other refiners, he formed the Export Oil Corp., which specialized in refining and marketing gasoline for export. As president of this corporation he acquired an international acquaintance and was perfectly at home in many capitals of the Old World.

His quiet, gentle, personality won him hosts of friends and his strong, firm, character commanded the respect of his adversaries. He is survived by his widow, four daughters, Mrs. T. L. Moore, Mrs. H. R. Delaney, Misses Marie and Lucille Constantin, all of Tulsa; and three sons, Jules and Eugene Constantin of Wichita Falls, Tex., and Charles Constantin of Tonkawa, Okla. Funeral services were held in Tulsa.

WEST TEXAS WILDCATS

(Continued from Page 40)

The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur. ..... Shut down 1,680 ft.
Gene Mays and others' No. 1 Hartigrove, NW SW Sec. 312, Mrs. A. Schmidt Sur. A-1,173 ..... Shut down for casing 1,550 ft.; flowing salt water; making enough gas to burn.
Marland Oil Co. & Taylor's No. 1 Sansom, C NW NW Sec. 128, Blk. 72, T. & N. O. Sur. ..... Little water 1,375 ft.; shut down 1,650 ft.
Swoveland & Lewis' No. 1 Plants & Bacon, C E ½ Sec. 8, G. C. & S. F. Sur. ..... Location.

CRANE COUNTY

Cromwell & Jones' No. 1 University, NW cor. SW Sec. 47, Blk. 30 ..... Top salt 1,015 ft.; drilling 2,385 ft.
Gulf Prod. Co.'s No. 1 W. N. Waddell, NE cor. Sec. 12, Blk. B-25, School Land ..... Drilling 755 ft. with core drill machine.
Independent O. & G. Co.'s No. 8 Taylor, H. T. Sapp Sur. ..... Total depth 2,417 ft.; plugged back to 2,396 ft.; shut down; to be plugged.
McCamey & Zoch's No. 1 Cowden Brothers, cor. Sections 30, 31, 40, 41, Blk. X ..... Top salt 995 ft.; drilling 2,600 ft.
Prairie O. & G. Co.'s No. 1 Colette, SW cor. Sec. 36, Blk. 31, University Sur. ..... Four bailers sulphur water per hour at 4,000 ft.; shut down for repairs 4,115 ft.
Ben D. Simon & Cromwell's No. 1 Brookfield, C SE Sec. 23, Blk. 6, H. & T. C. Sur. ..... Three bbls. sulphur water per hour 2,570 ft.; drilling 3,280 ft.
Texas Dev. Co.'s No. 1 Cowden ..... Shut down 3,820 ft.
Zweifel and others' No. 1 W. H. Cowden, SE SE Sec. 16, Blk. X, C. C. S. D. Sur. ..... Hole full sulphur water 3,050 ft.; drilling 3,200 ft.

CROCKETT COUNTY

Anchor Oil Co. (Cumberland) No. 1 Couch, C NE Sec. 18, Blk. QR, D. & S. E. T. R. R. Sur. ..... Shut down 2,705 ft.
V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec 4, Blk. 2, I. & G. N. Sur. ..... Drilling 930 ft.
George A. Henshaw, Jr., No. 1 University, 1,320 feet from S and W lines SW Sec. 5, Blk. 14, University Sur. ..... Top salt 450 ft.; small show oil and gas 1,100-15 ft.; drilling 1,165 ft.
J. K. Hughes' No. 2-B Powell, Sec. 63, E. L. & R. R. Sur. ..... Fishing for 18 joints 8-in.; total depth 2,535 ft.
Magnolia Pet. Co.'s No. 2 Shannon, SE SE Sec. 9, Blk. BB, E. L. R. R. Sur. ..... Hole full sulphur water 2,390 ft.; drilling 3,085 ft.
William Shaffer and others' No. 1 University, C SE SE Sec. 9, Blk. 47, University Sur. ..... Total depth 2,344 ft.; plugged back to 2,208 ft.; shot 10 qts. 2,170-95 ft.; shut down.
William Schaffer et al's No. 2 University, 1,350 ft. N and 2,610 ft. E of SW cor. Sec. 9, Blk. 47, Univer. Land .. Location.
W. W. Donnelly, Young, Logan & Hult's No. 1 Pierce, C SW Sec. 150, Blk. O, G. H. & S. A. Sur. ..... Rainbow show 454 ft. and 540 ft.; shut down for 12-in. 560 ft.
P. H. Williams' No. 1 L. P. Lowell ..... Rigging up.
World Oil Co.'s No. 1 Schneeman, N and W SE cor. Sec. 57, Blk. BB, G. C. & S. F. Sur. ..... Top salt 1,035 ft.; sulphur water 2,490 ft.; drilling lime 2,515 ft.
Young & Cromwell's No. 1 University, C SE Sec. 23, Blk. 31, University ..... Pay 1,160-65 ft.; shows at 1,505 and 1,574 ft.; shut down 1,750 ft.

CROSBY COUNTY

El Capitan Oil Co.'s No. 1 O. L. Slaton, NW cor. SW Sec. 5, Blk. B-9, E. L. & R. R. Sur. ..... Shut down 2,855 ft.

CULBERSON COUNTY

James H. Gardner and others' No. 1 Radford, C SE Sec. 29, Blk. 62, Pub. Sch. Ld. Sur. ..... Spudded 275 ft. and shut down.

DICKENS COUNTY

Bowser Mickels and others' No. 1 Pitchford ranch ..... Shut down 3,250 ft., contract depth; may deepen.
Moutray Oil Co. and Clancey & English's No. 1 Blackwell, C SE Sec. 406, Blk. 1, H. & G. N. Sur. ..... Shut down 3,509 ft.
Moutray Oil Co. and Clancey & English's No. 1 Jones, SE cor. NW Sec. 311, Blk. 1, H. & G. N. Sur. ..... Shut down 3,550 ft.; to deepen.

ECTOR COUNTY

J. S. Cosden, Inc., et al's No. 2 Connell-A, NW cor. NE Sec. 13, Blk. B-16, School Land ..... Spudding.

FISHER COUNTY

Sinclair Oil & Gas Co.'s (was Bourbon Royalty Co.'s) No. 1 J. A. Danise, Sec. 6, Blk. K, T. & P. Sur. ..... Spudding.
Marland Oil Co.'s (was Caldwell and others') No. 1 Rochelle, SW cor. NE Sec. 184, Blk. 3, T. & P. Sur. .. Drilling 3,020 ft. (corrected).
Marland Oil Co. and Texon's No 1 McCall ..... Location.
California Co.'s No. 1 R. G. Anderson, Sec. 22, Blk. 20, T. & P. Sur. ..... Hole full sulphur water 2,500 ft.; salt water 2,801-12 ft.; total depth 3,070 ft.; underreaming.
California Co.'s No. 1 Maggenheimer, SE cor. SW Sec. 15, Blk. 1, H. T. & B. Sur. ..... Hole full sulphur water 2,826-2,937 ft.; hole full water 2,975-3,000 ft. and 3,055-70 ft.; total depth 3,274 ft.; underreaming 8-in.
Danciger Oil & Refg. Co.'s (F. P. Zoch and others') No. 1 Lanius, NE cor. SE Sec. 15, Blk. Y, T. & P. Sur. .... Drilling 3,240 ft.
Huecony Gas Co.'s No. 1 Langford, SW SW Sec. 7, Blk. 21, T. & P. Sur. ..... Small show oil 2,350 ft. and 2,808-09 ft.; no gas; shut down for 6-in.
Barber Oil Co.'s (was Mason Oil Co.'s) No. 1 W. A. Cross .. Drilling second hole 1,075 ft.
R. W. Raney's No. 2 Maberry ..... Shut down for orders 2,725 ft.
Fred Phillips' No. 1 C. M. Webb, 756 ft. S and 1,050 ft. W NE cor. Sec. 2, Blk. K ..... Hole full salt water 2,220-40 ft. and 2,637 ft.; drilling 2,660 ft.
Stearns & Streete's No. 1 W. A. Howe, N and E SW cor. NE Sec. 12, Blk. 23, T. & P. Sur. ..... Shut down for water 2,450 ft.
F. P. Zoch and others' No. 1 R. M. Clayton, C of W 160 acres of R. M. Clayton Pre-emption Sur. ..... Odor gas 2,681-2,707 ft.; hole full salt water 2,712-55 ft.; sulphur water 3,090 ft.; show gas in black lime 3,128-32 ft.; black and gray lime 3,152-55 ft.; rainbow show and strong smell gas; drilling 3,315 ft.; hole full sulphur water.

FOARD COUNTY

Humble O. & R. and Navarro Oil Co.'s No. 1 L. McAdams, C S ½ Sec. 27, Blk. L, S. P. Sur. ..... Running 8-in. 2,440 ft.

GARZA COUNTY

Emerald Oil Co.'s No. 1 D. Boren, NW cor. NE Sec. 137, Blk. 5, H. & G. N. Sur. ..... Drilling 1,750 ft.
Pandem Oil Co.'s No. 1 Justice, SW cor. NW Sec. 2, Blk. 6, H. & G. N. Sur. ..... Rig.

GLASSCOCK COUNTY

Green et al's No. 1 F. G. Oxsheer ..... Rigging up.
J. S. Meriwether's No. 1 L. S. McDowell, C SW Sec. 43, Blk. 34, Twp. 2-S, T. & P. Sur. ..... Location.
R. R. Penn et al's No. 1 W. P. Edwards, C SE Sec. 11, Blk. 34, Twp. 2-S, T. & P. Sur. ..... Location.
Texon Oil & Land and Marland Oil Co.'s No. 1 W. R. Settles, Sec. 160, Blk. 29, W. & N. W. Sur. ..... Pumped 230 bbls. first 24 hours 1,235-63 ft.; now pumps 70 bbls. oil and 20 bbls. sulphur water.

HALL COUNTY

Seifert and others' No. 1 Owens, C NE Sec. 179, Blk. S-5, Dennison & Pacific Sur. ..... Spudded and shut down.

HOCKLEY COUNTY

El Capitan Oil Co.'s No. 1 Ellwood, SW cor. Sec. 55, Blk. A, R. M. Thompson Sur., 18 miles NW of Lubbock .. Shut down for casing 630 ft.

HOWARD COUNTY

Bowers et al's No. 1 Chester Jones, C SW Sec. 32, Blk. 27, T. & P. (3,200-ft. test) ..... Spudded and shut down.
Fred Carey et al's No. 1 G. O. Chalk, SE NW Sec. 124, Blk. 29 ..... Shut down 250 ft.
Dixie Oil Co.'s No. 1 H. R. Clay, S and E NW cor. Sec. 154, Blk. 29, W. & N. W. Sur. ..... Drilling 1,940 ft.
Francis & Brunson's No. 1 J. W. Furrh, C SW Sec. 11, Blk. 31, T. & P. Sur., T-1-S ..... Location.
Marland Oil Co.'s No. 1 J. B. Harding, C SE Sec. 19, Blk. 33, T. & P. Sur. ..... Rotary; drilling 1,830 ft.
Marland Oil Co.'s No. 1 Bryse, C SW Sec. 35, Blk. 34, T. & P. Sur., Tp. 1-S ..... Hole full salt water 3,265-85 ft.; drilling 3,465 ft. with 2,000 ft. salt water in hole.
L. C. Harrison et al's No. 1 Dora Roberts ..... Rigging up.
Marland Oil Co. & Zoch's No. 1 Guitar Est. No. 1 ..... Building rig.
Midwest Exploration Co.'s No. 1 H. R. Clay ..... Rigging up.

HARDEMAN COUNTY

Murchison Oil Co.'s No. 1 Ayres ..... Drilling 2,335 ft.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Jones, CSL Sec. 111, Blk. C, H. & T. C. Sur. ..... Drilling 2,130 ft.
Deep Rock Oil Co.'s No. 1 Beavers, CSL Sec. 224, Blk. 44, elev. 1,441 ft. ..... Drilling 1,940 ft.
Deep Rock Oil Co.'s No. 1 Big Four, 1,270 ft. south and 2,590 ft. west of NE cor. Sec. 31, Blk. 4 ..... Cable tools, drilling 515 ft.
Humble O. & R. Co.'s No. 1 Goode ..... Moving in standard tools.

IRION COUNTY

Cash Dollar et al's No. 1 Abe Mayer, C NE Sec. 1, Blk. 10, S. P. R. R. Sur. ..... Shut down 2,185 ft.
Cash Dollar et al's No. 1 G. J. Bird, NE Sec. 16, Blk. 10, S. P. R. R. Sur. ..... Shut down 950 ft.

JEFF DAVIS COUNTY

Humble O. & R. Co.'s No. 1 Crecencio Flores ..... Location.
J. K. Hughes Dev. Co.'s No. J. Z. Means, 600 ft. from N line and 2,000 ft. from W line of M. Robinson Sur. No. 1 ..... Shut down 1,700 ft.

JONES COUNTY

Atlantic O. P. Co. and Landreth's No. 2 Howell ..... Fishing 1,340 ft.
Bateman & Campbell's No. 1 Southard, C NW NW Sec. 43, Deaf & Dumb Asylum Lands ..... Shut down for water 1,790 ft.
Campbell et al's No. 1 L. H. Herndon, Sec. 6, M. E. P. & P. Sur. ..... Shut down 1,860 ft.
Consolidated Oil Co.'s No. 1 Armand & Taylor, C S½ SW Sec. 7, Blk. 4, H. & T. C. Sur. ..... Hole full salt water 1,470-86 ft.; shut down for 10-in. 1,516 ft.
Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands ..... Location.
Gault Brown et al's No. 1 Mrs. A. Zips ..... Moving in rig.
Gibson & Johnson's No. 1 Largent, C SE Sec. 50, Blk. 149, Dewitt Co. School Land ..... Shut down for fuel 2,466 ft.
Gillette & Hickey & Cowboy Evans' No. 1 S. W. King, Manuel Bueno Sur. No. 197 ..... Good show oil 2,070 ft.; no gas; swabbed 25 bbls.; hole full fluid; shut down.
Gillette & Hickey's No. 1 M. E. Young, Tevanio Sur. No. 190 ..... Shut down 1,200 ft.
Grisham & Hunter & Wildman's No. 1 George B. Birchfield, Harrison Co. School Land ..... Rainbow showing 2,758-65 ft., 2,815-25 ft. and 2,860-70 ft.; shut down for underreamer 2,960 ft.
Grisham & Hunter & Wildman's No. 1 Williams, Harrison Co. School Land ..... Two bailers oil brown sand 2,626-40 ft. through 50 ft. caving; shut down 2,660 ft.
Hart & Cole's No. 1 Cranston, Sec. 10, Blk. 17, T. & P. Sur. ..... Hole full salt water 2,650 ft., total depth 2,835 ft.; underreaming.
Hurley Oil Co.'s No. 2 John Sears ..... Drilling 1,850 ft.
Hutson & Weaver's No. 1 Smith, Sec. 51, Blk. 18, T. & P. Sur. ..... Shut down for fuel 700 ft.
Kirk & Brewer's No. 1 J. H. Milsap ..... Shut down 575 ft. for water.
Marland Oil Co.'s No. 1 Larson, C SE NE Sec. 188, B. B. D. & C. Sur. ..... Total depth 1,930 ft.; underreaming 8-in.
Marston Oil Co.'s No. 1 E. Howell, NW cor. SE W ½ of N 400 acres, Sec. 20, Blk. 19, T. & P. Sur. ..... Drilling 2,210 ft.
Marston Oil Co.'s No. 1 J. S. Swan, Robert Spears Sur. No. 280 ..... Rigging up.
Mid-Continent Petroleum Corp.'s No. 1 H. Evans, NE cor. SE SE Sec. 44, S. P. R. R. Sur. ..... Drilling 2,275 ft.
Midwest Exploration Co.'s No. 3 Thornton, Sec. 18, Blk. T, T. & P. Sur. ..... Drilling 2,245 ft.
Midwest Exploration Co.'s No. 4 Thornton ..... Drilling 2,410 ft.
McLester et al's No. 1 Will Myatt, Sec. 10, James Warfield Sur. ..... Small show oil and water 1,658-60 ft.; drilling 2,380 ft.
Victor H. Martin's No. 1 Culbertson, Vincent Bell Sur. No. 6 ..... Drilling 3,170 ft.
Musgrove & Culbertson & Cowboy Evans' No. 1 Manly, C S½ S½ Sec. 35, Blk. 14, T. & P. Sur. ..... 250,000 ft. dry gas, no oil 1,640 ft.; shut down 2,070 ft.
Phillips Pet. Co.'s No. 1 Mason, N and W SE cor. NE Sec. 18, Blk. 19 ..... Swabbed 178 bbls. first 8 hours 2,522-29 ft.
Phillips Pet. Co.'s No. 1 Thornton ..... Six bbls. water 1,930-45 ft.; missed pay; drilling 2,818 ft.
Phillips Pet. Co.'s No. 3 Walling, N and E SW cor. Sec. 19, Blk. 19, T. & P. Sur. ..... Swabbed 135 bbls. in 16 hours at 2,520-30 ft.
Phillips' No. 3 Joe Winters ..... Rig.
Shaw & Rathke and others' No. 1 Bristow, SE SE Sec. 1, J. H. Gilson Sur. ..... Shut down 500 ft.
W. G. Stough and others' No. 1 J. P. Willis ..... Shut down 730 ft.
Stebbins Oil Co.'s No. 1 J. M. Higgs ..... Drilling 1,225 ft.
Swensondale Oil Co.'s No. 1 Caton, SW NW Sec. 9, Deaf & Dumb Asylum Lands ..... Shut down 435 ft.
Tomberlin et al's No. 1 Oscar Clapp ..... Moving in rig.
World Oil Co. and others' No. 1 A. W. Clark, SE cor. Sec. 15, Blk. 19, T. & P. Sur. ..... Hole full salt water 1,975-2,010 ft.; more salt water 2,305 ft.; slight show oil 2,425-36 ft. and 2,660-70 ft.; drilling 2,775 ft.
World Oil Co.'s No. 1 W. H. Lee, 5,400 ft. N and 2,300 ft. E of SW cor. J. W. McKissick Sur. ..... Drilling 2,000 ft.
Zeigler and others' No. 1 Reeves, C SE SE Sec. 164, B. B. B. & C. Sur. ..... Shut down for fuel 1,505 ft.

KENT COUNTY

Douglas Oil Co.'s No. 1 Scoggins ..... Spudding.

KIMBLE COUNTY

Dixie Oil Co.'s No. 1 Harrison, 900 ft. N NE 40 cor. S 300 ft., No. 80 Sur. ..... Shut down 3,035 ft.

KING COUNTY

Hoffer Oil Co.'s No. 1 F. Patton ..... Shut down 1,275 ft.

LAMB COUNTY

E. C. Marrs et al's No. 1 Yellowhouse, N line Labor 3, League 697, State Capitol Lands ..... Salt water 4,210-25 ft.; plugged and abandoned 4,240 ft.

LOVING COUNTY

Kingwood Oil Co.'s No. 1 T. O. Moore, C NE Sec. 2, Blk. G-25, Pub. Sch. Ld. ..... Location.

LUBBOCK COUNTY

Sam Arnett and others' No. 1 Bowles Ranch ..... Shut down 400 ft.

LYNN COUNTY

The Hart Oil Corp.'s No. 1 C. O. Edwards, NW NW Sec. 5, Blk. 2 ..... Shut down 1,400 ft.

MENARD COUNTY

J. R. Lewis and others' No. 1 White, C NW Sec. 8, J. Mabrey Sur. ..... Shut down 415 ft.
Clark and others' No. 1 Klothman, NW NW Sec. 77, Kulman Sur. ..... Shut down 580 ft.

MITCHELL COUNTY

Eastland Oil Co.'s No. 2 C. M. Adams ..... Drilling 2,625 ft.
California Co.'s No. 1 W. H. Butler, Lease 2 ..... Drilling 2,785 ft.
California Co.'s No. 1 E. Morrison, Lease 1 ..... Drilling 1,515 ft.
Teas & Stivers' No. 1 Hardee, SE SE Sec. 85, Blk. 97, H. & T. C. Sur. ..... Six-bbl. show 3,070-3,102 ft.; total depth 3,500 ft.; shot 200 quarts 3,066-3,116 ft.; estimated 20 bbls.

Texas & Stivers' No. 1 Dowlin, NW cor. Sec. 11, Blk. 27, T. & P. Sur. ... Rig.
B. H. Cogdell's No. 1-C F. E. McKenzie, WL, NW NE Sec. 226, Blk. 1-A, H. & T. C. Sur. ... Shut down 125 ft.
Robert Thraves' No. 1 C. Way ... Rig.
Paul Teas' No. 1 Ed Strain ... Drilling 1,000 ft.
Morrison & Thompson's No. 1 Griffith, SE SE Sec. 45, Blk. 29, T. & P. Sur. ... Drilling 2,400 ft.
B. E. Walter and others' No. 1 J. E. Dollen, NW cor. SW Sec. 11, Blk. 27, T. & P. Sur. ... Shut down 3,600 ft. for repairs.
J. C. Yancey's No. 1 Saunders, 400 ft. N and 1,700 ft. E. of SW cor. Sec. 25, Blk. 25, T. & P. Sur. ... Spudded and shut down.

MOTLEY COUNTY

Chechaco Oil Co.'s (J. W. Pennington et al of Amarillo) No. 1 J. W. Owens, NW cor. Sec. 26, Blk. 4 (15,000-acre solid block) ... Shut down 1,050 ft.
Wheeler et al's No. 1 C. D. Bird, C NE Sec. 4, Blk. S, Stephens Sur. ... Rig on ground.

NOLAN COUNTY

A. G. Malone et al's No. 1 J. B. Carlyle ... Location.
A. G. Malone et al's No. 1 M. C. McElmurry ... Rigging up.
J. H. Winemiller Corp.'s (was Peters et al's) No. 1 Booth ... Drilling 770 ft.
Stein & Greeben's No. 1 L. W. Ross ... Location.
Thomas & Reynold's No. 1 Allen, C. W. ¼ NW Sec. 58, Blk. X, T. & P. Sur. ... Total depth 840 ft.: underreaming 12-in.
Walford et al's No. 1 H. D. Simpson ... Location.
Herbert Oil Co.'s (was McClesky and others') No. 1 Pepper, SE cor. SW Sec. 29, Blk. 22, T. & P. Sur. ... Rig on ground.
Phillips Pet. Co.'s No. 1 Scott, Sec. 58, Blk. 21, T. & P. Sur. ... Rigging up.
Zweifel and others' No. 1 Longbotham, C SE Sec. 130, Blk. 1, H. & G. N. Sur. ... Drilling 1,100 ft.

PARMER COUNTY

Humble O. & R. Co.'s No. 1 Farwell ... Drilling 1,300 ft.

PECOS COUNTY

Arkansas Fuel Co.'s No. 1 H. Holmes, 2,040 ft. north and 1,520 ft. west SE cor. Sec. 16, Blk. 178, T. C. R. R. Sur. ... Drilling 380 ft.
Benedum & Trees' No. 1 J. C. Trees, C Sec. 50, Blk. 8 ... Shut down 3,110 ft.
Buell and others' No. 1 Batcheler, C N half NE Sec. 89, Blk. OW, G. C. & S. F. Sur. ... Show oil 1,700 ft.: flowed sulphur water 1,775 ft.; drilling 1,870 ft.
Buell & Hagan's No. 1 McKenzie, Sec. 8, Blk. 604, Mrs. A. L. Canon Sur. ... Rigging up.
Buell & Hagan's No. 1 University, C N ½ SE Sec. 31, Blk. 24 ... Bailed 1½ bailers live oil 2,460 ft.; shut down 2,700 ft.
Buell & Hagan's No. 1 Jasper, 1 mile south and west NE cor. Jasper Co. School Land No. 104 ... Location.
California Co.'s No. 1 Union Land Co., 1,650 ft. N and 990 ft. E of most northerly SW cor. Sec. 8, Blk. 110, T. C. R. R. Sur. ... Drilling 905 ft.; top salt 834 ft.
Cromwell & Kimberlin's No. 1 Blackman, C NW Sec. 24, Blk. 3, H. & T. C. Sur. ... Top salt 890 ft.; drilling 1,115 ft.
Crosby Drilling Co.'s No. 1 O. G. Yates, Sec. 70, Blk. 1, I. & G. N. Sur. ... Small show oil 880-85 ft.; flat hole; underreaming.
Kirby Oil Co.'s No. 1 Rheinstrom, C NE SW Sec. 30, Blk. 2, H. & T. C. Sur. ... Top salt 830 ft.; drilling 1,520 ft.
Del Rio Drilling Synd.'s No. 1 K. C. & Ft. Stockton, C SW Sec. 19, Blk. 178, T. C. Sur. ... Shut down 740 ft.
Garland & Mott's No. 1 El Paso Cattle Loan Co., C NE Sec. 26, Blk. 126, T. & S. L. Sur. ... Location.
Kershaw & Livingston's No. 1 Cannon, SW cor. NE Sec. 51, Blk. A-2, T. C. R. R. Sur. ... Location (corrected).
Mid-Kansas O. & G. Co.'s No. 1 Smith Taylor ... Location.
Mid-Kansas O. & G. Co.'s No. 3 Yates, W of SW cor. Sec. 60, Blk. 1, I. & G. N. Sur. and loc. in J. Yates Sur. ... Top lime 992 ft.; flowed 1,087 bbls. 1,000-82 ft.
Mid-Kansas O. & G. Co.'s No. 4 Yates A ... Rigging up.
Mid-Kansas O. & G. Co.'s No. 1 Yates C (was No. 1 Acct. 3) ... Location.
Quinby Oil Co.'s No. 1 Tomelite, Sec. 1, Blk. 267, Client Addition Sur., Ft. Stockton ... Shut down for casing 3,440 ft.
Quinby Oil Co.'s No. 1 Bennett, C NW 592, Blk. 105, G. C. & S. F. Sur. ... 200 ft. oil in hole from 1,216 ft.: shot 20 qts. 1,208-20 ft.; drilling 1,460 ft.
Quinby Oil Co.'s No. 1 A. A. Gray, 660 ft. north and 1,320 feet west SE cor. Sec. 593, Abst. 3,009 ... Drilling 200 ft.
Texon O. & L. Co.'s No. 1 I. G. Yates, C Sec. 55, Blk. 1, I. & G. N. Sur. ... Swabs 30 bbls. 1,268-1,300 ft.
Texon O. & L. Co. and Marland Oil Co.'s No. 1 Blakesley ... Rigging up.
John Dropplemann's No. 1 Mrs. L. Hershenson, Sec. 7, Blk. 51, T. & P. Sur. T-10 ... Drilling 170 ft.

KING COUNTY

Gilson & Johnson ... Spudded and shut down.
Midwest No. 1 Patton ... Rig.
J. L. Pattison No. 1 Patton ... Shut down 1,275 ft.
Phillips Petroleum No. 1 ... Drilling 400 ft.
Sinclair ... Spudded and shut down.
White Eagle No. 1 ... Spudded and shut down.

REAGAN COUNTY

The Texas Co.'s No. 2 J. D. Sugg, C Sec. 87, Blk. 2, T. & P. Sur. ... Top salt 860 ft.; top lime 2,110 ft.; drilling 2,130 ft.
Tidal Oil Co.'s No. 1 University, NW cor. NE Sec. 20, Blk. 8 ... Location.

REEVES COUNTY

Deep Rock Oil Co.'s No. 1 Caldwell, C SW Sec. 22, Blk. 58, T. & P. Sur., Twp. 8 ... Drilling 2,340 ft.
Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Pub. Sch. Ld. ... Spudded 20 ft. and shut down.
Humble Oil & Ref. Co.'s No. 1-B Kloh, C NE Sec. 47, Blk. 56, T. & P. Sur. T-2-S ... Fishing 1,380 ft.
World Oil Co.'s No. 1 Biggs, C SE Sec. 65, Blk. 112, Pub. Sch. Ld. Sur. ... Total depth 1,810 ft.; skidded rig.

RUNNELS COUNTY

Associated Pet. Co.'s (was Bell & Moore's) No. 1 W. W. King, 1,200 ft. W of NE cor. Lge. 14, J. V. Cobrera Sur. ... Spudded and shut down.
Moore & Bell's No. 1 Ferguson, 2,640 ft. S and 1,320 ft. E of NW cor. F. J. Ford Sur. No. 152 ... Spudded and shut down.
Lou Ladd et al's (was Frank Yates') No. 1 R. M. McMillan ... Spudding 220 ft.

SCHLEICHER COUNTY

Beavers & Leath and others' No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T. O. Sur. ... Spudded and shut down.
Thomas Grey et al's No. 1 Ball Robinson, C NW Sec. 25, Blk. M, G. H. & S. A. Sur. ... Spudded and shut down; drilling water well.

SCURRY COUNTY

Northwest Co.'s No. 1 T. C. Stinson, NE NW SW Sec. 101, Blk. 97, H. & T. C. Sur. ... Tested 8 bbls. 1.745 ft.: another pay at 3,402-07 ft.; bailed 70 bbls. oil in 4 hours and bailed dry; shut down 3,900 ft.

STERLING COUNTY

J. P. Williams' No. 1 Clark, NE NE SW Sec. 7, Blk. 8, G. C. & S. F. Sur. ... Shut down 847 ft. for water.

STONEWALL COUNTY

McCamey & Zoch's No. 1 J. Ward, C SW Sec. 153, Mrs. Ward Dobbs Sur., 3 miles NW of Aspermont ... Moving in material.

TAYLOR COUNTY

City of Abilene's No. 1 fee, NW SW SE Sec. 66, Lunatic Asylum ... Shut down 2,264 ft.
Dorning & Perrine's No. 1 J. A. Hammer, center N 100 acres, Sec. 23, Blk. 19, T. & P. Sur. ... Fishing for bit 250 ft.
Oil Operators Trust Co.'s (was Gibson & Johnson's) No. 1 Haines & Hamilton, NE cor. W ½ SE Sec. 38 ... Shut down for casing 2,503 ft.
Gibson & Johnson's No. 1 Hendry ... Rig.
Grisham & Hunter's No. 1 D. D. Huddleston, CWL Lot 29, League 146, Grimes Co. School Land ... Small show oil 2,332 ft.; drilling 2,336 ft.
W. E. Halbert et al's No. 1 Hunt, C SE Sec. 124, Blk. 64, H. & T. C. Sur. ... Shut down 1,265 ft.
Humble O. & R. Co.'s No. 1 Mattie Jacobs ... Drilling 400 ft.
Midwest Explin. Co.'s No. 1 Dora Smith, Jose Gabo. Sur. ... Shut down 1,520 ft.
Midwest Explin. Co.'s No. 1 Toombes, Alex Thompson Sur. No. 37 ... Drilling 1,780 ft.
Mitchell & Breene's No. 1 Tittle ... Location.
Morrison & Thompson's (was Noodle Creek Oil Co.'s) No. 1 Mrs. Alice Rose, SW cor. NE Sec. 29, Blk. 19, T. & P. Sur. ... Drilling 800 ft.
Owen & Sloan's No. 1 Lattimer ... Drilling 100 ft.
Roeser & Pendleton's No. 1 Sam Hutman, C W ½ NW Sec. 64, Blk. 5, T. & P. Sur. ... Shut down for fuel 710 ft.
Sanger O. & R. Co.'s No. 1 Ike Brown NE cor. Sec. 54, Blind Asylum Land ... Shut down 1,870 ft.
Sanger Oil & Refining Co.'s No. 1 Gillespie, Sec. 7, Lunatic Asylum Land ... Drilling 3,875 ft.
World Oil Co.'s No. 1 J. R. Griffith ... Rig.

TERRELL COUNTY

E. T. Williams and others' No. 1 Robertson, C NE Sec. 71, Blk. D-10, T. C. Sur. ... Shut down for casing 2,800 ft.: hole full of water.
Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M. K. T. Sur. (22 miles northeast of Sanderson) ... Location.

TERRY COUNTY

Kingsland Oil & Potash Co.'s No. 1 Brownsfield, C NW SW SW Sec. 7, Blk. 1-A, E. L. R. R. Sur. ... Shut down 1,050 ft.

TOM GREEN COUNTY

Fitzgerald et al's No. 1 Bennett ... Location.
Marland Oil Co.'s No. 1 Llano ... Drilling 490 ft.

UPTON COUNTY

Beaty et al's No. 1 J. F. Lane ... Top salt 880 ft.; drilling 2,090 ft.
W. W. Donnelly and others' No. 1 University, C SW Sec. 21, Blk. 4, University ... Top salt 1,560 ft.; drilling 2,165 ft. in salt.
Gulf Production Co.'s No. 1 J. T. McElroy-B, C SW NE Sec. 187, Blk. F ... Top salt 1,220 ft.; drilling 1,375 ft.
Hults and others' No. 1 Giddings, C NW Sub. Sec. 12, Throckmorton Co. School Land ... Top salt 1,515 ft.; shut down 3,210 ft.; contract completed.
Humble O. & R. Co.'s No. 4 Ricker ... Drilling 1,825 ft.
Marland Oil Co.'s No. 3 Burleson, T. C. Jones Sur. No. 100 ... First pay 2,205 ft.; second pay 2,295 ft.; 2,000 ft. sulphur water 3,390-95 ft.; 1,000 ft. sulphur water 4,135 ft.; drilling lime 4,215 ft.
Marland Oil Co.'s No. 34 Burleson, Sec. 100, T. C. Jones Sur. ... Shut down 3,255 ft.
Marland Oil Co.'s No. 3 Benton Land, Julia Prater Sur. No. 1 ... Shut down 290 ft.
Prairie O. & G. Co.'s No. 1 Lane-C, NWC SW SW Sec. 3, G. C. & S. F. Sur. ... Spudding 200 ft.
Sartain & Davis No. 1 Bull, SW NE Sec. 48, Blk. 41, T. & P. Sur. ... Rig burned 3,280 ft.; rebuilt.
Snowden & McSweency's No. 1 E. S. Hughes, NW cor. their 80 acres in Sec. 4, William Teer Sur. ... Spudding 200 ft.
The Texas Company's No. 23 King ... Top salt 512 ft.; drilling 1,575 ft.

VAL VERDE COUNTY

A. Blume and others' No. 1 Moore estate, Sec. 183, J. Mitchell Sur. ... Shut down 3,000 ft.
Curso Williams' No. 1 Holman, NE NE Sec. 5, Blk. N, G. H. & S. A. Sur. ... Shut down 2,270 ft.
Douglas Oil Co.'s No. 1 Sellars, C SE Sec. 82, Blk. A, I. & G. N. Sur. ... Shut down 2,210 ft.
East Del Rio Oil Co.'s No. 1 Russell, E cor. Sec. 183, Del Rio Town Sur. ... Shut down 3,142 ft.
Hiawatha Oil Co.'s No. 1 Sellars, C Sec. 1,031, Blk. A, I. & G. N. Sur. ... Hole full salt water 2,455 ft.; shut down 2,525 ft.
Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I. & G. N. Sur. ... Shut down 3,775 ft.
O. O. Owens' No. 1 Mills ... Drilling 875 ft.
Transcontinental Oil Co.'s No. 1 W. S. Stevenson, NE SE NE Sec. 3, Blk. 4, I. & G. N. Sur. ... Shut down 4,280 ft.

WARD COUNTY

Marland Oil Co.'s No. 1 J. Sealey, C SE Sec. 78, Blk. A, G. M. M. & A. Sur. ... Tole full fresh water 970-80 ft.; top salt 1,100 ft.; drilling 1,840 ft.

WINKLER COUNTY

White Eagle O. & R. Co.'s (was Gibson & Johnson's) No. 1 R. A. Lock, 1,320 ft. west of NE cor. Sec. 30, Blk. 74, northwest of discovery well ... Location.
Gulf Prod. Co.'s No. 1 T. G. Hendricks, NW cor. Sec. 34, Blk. B-5, Pub. Sch. Ld., elev. 2,801 ft. ... Top salt 1,665 ft.: show gas 2,553-58 ft.; top lime 2,538 ft.; flowed 2,580 bbls. at 2,824-42 ft.
Champlin Drilling Co.'s No. 1 C. W. Cowden, C SW Sec. 21, Blk. C-23, Pub. Sch. Ld., elev. 2,889 ft. ... Total depth 900 ft.; shut down.
McCullough Oil Co.'s No. 1 Tobe Morton, CEL Sec. 20, Blk. B-12, Pub. Sch. Ld. ... Drilling 1,330 ft.
R. S. Matthews and others' No. 1 State, C Sec. 7, Blk. A-57, Pub. Sch. Ld. Sur, elev. 3,120 ft. ... Skidding rig.
Independent Oil & Gas Co.'s No. 1 Hendricks, Sec. 42, Blk. B-5, Pub. Sch. Ld. ... Fishing bailer 2,005 ft.; no salt.
F. P. Zoch and others' No. 1 John Sealy, C SW Sec. 73, Blk. A, G. M. M. & A. Sur., elev. 2,709 ft. ... Top salt 1,062 ft.; top lime 3,200 ft.; 150 ft oil 3,216-17½ ft.; 2,800 ft. salt water 3,268 ft.; drilling 3,940 ft.
L. D. Ladd, Hill and others' No. 1 Amburgey, C Sec. 24, Blk. B-7, Pub. Sch. Ld. Sur., elev. 3,033 ft. ... Top salt 1,220 ft.; total depth 3,447 ft.; rig burned.
Pure Oil Co.'s No. 1 Hendricks, SW cor. Sec. 41, Blk. B-5, Pub. Sch. Ld. ... Rig.
Skelly Oil Co.'s No. 1 M. M. Leeman, 1,320 ft. east of SW cor. Sec. 21, Blk. 75, elev. 2,951 ... Top salt 1,167 ft.; drilling 1,240 ft.
Southern Crude Oil Purchasing Co.'s No. 1-C (was No. 2) Hendricks, NE cor. Sec. 33, Blk. B-5, Public School ... Top salt 1,910 ft.; set 8-in 2,505 ft.; drilling 2,556 ft.
Southern Crude Oil Purchasing Co.'s No. 2-C (was No. 3) Hendricks, Sec. 33, Blk. B-5 ... Top salt 1,901 ft.; drilling 2,215 ft.
Liano Oil Co.'s No. 1 Scarborough, center Sec. 1, Blk. C-22, Pub. Sch. Ld., elev. 2,921 ft. ... Top salt 1,115 ft.; hole full water 1,821 ft.; shut down 1,870 ft.
Group 1 Humble O. & R. Co.'s No. 1 T. G. Hendricks, C SE Sec. 36, Blk. 27 ... Rigging up.
Humble O. & R. Co.'s No. 1 T. G. Hendricks, S and W NE cor. W ½ NE Sec. 33, Blk. B-5, Public School Land ... Rig.
Southern Crude Oil Pur. Co.'s No. 3-C Hendricks, SE cor. NE Sec. 33, Blk. B-5 ... Drilling 620 ft.

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

		Month of Feb. 1926	Month of Feb. 1927	Two months ended Feb. 1926	Two months ended Feb. 1927
Petroleum—					
Crude	bbls.	1,049,035	1,164,617	2,232,299	2,368,160
Crude	$	1,787,703	2,116,856	4,154,097	4,406,468
Total refined petroleum	bbls.	8,440,138	9,124,012	17,530,851	18,369,564
Total refined petroleum	$	36,943,877	38,920,641	75,731,303	80,570,831
Gasoline, naphtha and other light products	bbls.	3,173,883	3,474,879	6,444,329	6,964,411
Gasoline, naphtha and other light products	$	19,484,971	21,879,030	39,677,392	42,822,712
Oils—					
Illuminating	bbls.	1,554,362	1,381,291	3,394,446	2,973,132
Illuminating	$	6,397,491	6,356,187	13,724,138	14,393,312
Gas and fuel	bbls.	2,922,330	3,637,366	6,178,287	6,939,045
Gas and fuel	$	3,947,013	4,658,744	8,259,573	9,266,567
Lubricating	bbls.	780,287	606,141	1,490,312	1,454,490
Lubricating	$	7,012,418	5,810,480	13,781,347	13,672,960
Other refined petroleum products	bbls.	5,176	24,335	23,477	38,486
Other refined petroleum products	$	101,984	216,200	288,853	415,340
Paraffin wax	lbs.	28,708,995	23,622,816	57,770,408	52,850,922
Paraffin wax	$	1,539,966	1,273,965	3,187,723	2,892,879

TEXAS PANHANDLE

(Continued from Page 42)

Premier Oil Co.'s No. 1 E. B. Jones and The Texas Company, abandoned location for No. 1 C. R. Garner. Location was abandoned for Traders Oil Co.'s No. 1 Johnson Brothers. Phillips Petroleum Co. and Coble Oil Co.'s No. 25 J. A. Whittenburg, Section 13, Block Y, was completed as a 300-bbl. well after a 60-quart shot in lime at 2,929-50 feet; total depth 2,952 feet. Wheeler Oil & Gas Co.'s No. 1 H. E. Smith, Section 10, Block Y, was dry and abandoned at 375 feet.

Roberts County

Gibson Oil Corp.'s No. 1 T. S. Jones, Section 109, Block C, was dry and abandoned at 4,010 feet.

Wheeler County

Angus and associates' No. 1 L. C. Burchman, Section 91, Block 17, was completed as a 30,000,000 foot gas well at 1,780 to 1,809 feet.

DAILY AVERAGE PRODUCTION
Amarillo District
Week Ending March 26, 1927
Hutchinson County

Company—	Wells	Daily Averages This Week
Alaska Pet Co.	1	25
Amerada Pet. Corp.	9	740
American Ref. Co.	7	350
Apex Oil Co.	2	670
Badger Oil Co.	2	60
Barnsdall Oil Co.	2	105
R. G. Barnum	1	10
Black Diamond Oil Co.	1	10
Block Y Pet. Co	1	0
Brookins & Kistler	2	275
Buffalo Oil Co.	2	60
Canadian River Oil Co.	6	365
Center Dome Oil Co.	2	30
Centerfield Oil Co.	1	5
Coble-Whittenberg	4	350
Continental Oil Co.	1	5
Currie Brothers and J. R Phillips	3	600
Cockrell & McElroy	4	350
Collier & Taylor	1	15
Delmar Oil Co.	2	50
Derby Oil Co.	8	2,010
Devonian Oil Co.	3	600
Dixon Creek Oil Co.	39	7,600
Double Five Oil Co.	1	30
Douglas Oil Co and Cline	2	30
E. J. Dunnigan et al	2	175
Echo Oil Co.	3	2,000
Empire Gas & Fuel Co.	26	4,210
Fly Blackburn Oil Co.	2	80
Four Y Oil Co.	1	0
Franterhouse & Wetzel	1	45
Gates Oil Corp. (F. E. Kistler)	4	210
Goldelline Oil Co.	5	360
Golding & Phillips	1	10
Gopher Oil Co.	1	10
Grimes & Watts	1	75
Gulf Prod. Co and Panhandle Ref. Co.	54	5,640
Gulf Prod. Co.	36	3,650
L. R. Hagy	1	0
Heywood et al (Prairie et al)	1	10
J. K. Hughes Dev. Co.	22	1,575
Holmes, Currie & McKnight	3	210
W. H. Holmes	2	225
Homestead Oil Co	1	15
Hutchinson Co. Oil Co.	1	0
Dan A. Japhet	5	450
Julian Pet. Corp. (Canyon)	5	800
Kistler Oil Co.	2	750
Kistler & Lenix	2	630
Lenix Oil Co. et al	1	90
J. H. Lenix	1	15
Lenix & Patterson	2	430
Lucky 10 Oil Co	4	100
Manhattan Oil Co.	1	100
Marland Oil Co.	59	3,410
Midwest Exploration Co.	20	4,005
Minnehoma Oil Co. and Kistler	2	390
McMan Oil & Gas Co.	18	1,970
McIlroy & Herring	6	660
S. D. McIlroy	4	310
S. D. and W. W. McIlroy	8	800
McIlroy Brothers et al	4	675
J. H. Middleton	4	40
Mudge Oil Co.	1	0
Murchison & Fain	2	325
Newby Oil Co.	2	55
New Domain Oil Co.	3	85
Pantex Oil Co. (Westex)	9	1,000
Phillips & Heywood	3	400
Panhandle Oil Co.	1	0
Paramount Oil Co.	1	0
J. R. Phillips (Blasdel)	1	0
J. R. Phillips et al	5	2,105
Phillips Pet. Co.	195	26,700
Prairie Oil & Gas and Phillips Pet. Co.	57	12,890
Prairie Oil & Gas Co. et al	3	0
Prairie Oil & Gas Co.	7	0
Plains Drilling Co.	1	10
Pure Oil Co.	3	485
Relief Oil Co.	4	450
Henry Riley	1	150
Riley & Holmes	2	200
Rock Island Oil Co.	1	10
Roxana Pet. Corp.	10	725
Ryan Pet. Corp.	4	295
Skelly Oil Co.	25	2,625
Skiatex Oil Co.	7	1,060
J. L. Smith	2	135
Smith & Bynum	2	65
Southwestern Oil & Dev. Co.	4	1,100
Spring Creek Oil Co.	4	725
Summit Oil Co.	3	450
Sunny Jim Oil Co.	5	260
Sunburst Oil Co.	2	290
Sunrise Oil Co.	1	0
J. A. Swindler & Son	1	0
Tex-O Oil Co.	1	20
Travelers Oil Co.	3	425
Triangle Oil Co.	5	850
J. D. Ward et al	2	220
White Eagle O. & R. Co.	25	1,400
J. O. Whittington	1	0
Total Hutchinson County	838	103,980
Average per well		124.9
Carson County		
Amarillo Oil Co.	1	0
American Ref. Co.	9	710
Champlin Ref. Co.	1	110
Empire Gas & Fuel Co.	3	80
Gates Oil Corp.	1	5
Gulf Prod. Co.	16	225
Magnolia Pet. Co.	1	275
Marland Oil Co.	19	1,185
Marsten Oil Co.	1	160
McMan Oil & Gas Co.	4	1,175
Nunn & McAuley	2	720
Parks et al.	1	210
Prairie Oil & Gas Co.	1	630
Republic Production Co.	1	25
Roxana Pet. Corp.	8	850
W. W. Silk et al	3	80
Skelly Oil Co.	3	200
Southwest Oil & Dev. Co.	1	15
Sunny Jim Oil Co.	2	10
The Texas Company	13	425
Total Carson County	90	7,090
Average per well		77.9
Gray County		
Canyon Oil Co.	1	15
Empire Gas & Fuel Co.	3	60
Gulf Prod. Co.	12	925
Humble Oil & Ref. Co.	10	515
Magnolia Pet. Co.	18	420
McMan Oil & Gas Co.	10	750
Marland Oil Co.	1	35
Nabob Oil Co.	1	50
Osborne & Daniels	1	10
Phillips Pet. Co.	4	325
Prairie O. & G. and Atlantic & Shamrock	15	1,805
Pure Oil Co.	5	300
Roxana Pet. Corp.	1	35
Sun Oil Co.	3	120
The Texas Company	5	350
Wilcox-Pampa Oil Co.	18	2,220
Young et al	1	0
Total Gray County	109	7,935
Average per well		72.9
Moore County		
Cadman et al	1	0
Potter County		
Amarillo Oil Co.	1	30
Wheeler County		
Continental Oil Co.	2	225
Gibson Oil Corp.	5	570
Laycock et al	1	5
Magnolia Pet. Co.	2	570
Mid-Continent Pet. Corp.	1	15
Murchison & Fain	1	40
Mid-Kansas Oil & Gas Co.	2	340
Midwest Exploration Co.	2	10
World Oil Co.	1	50
The Texas Company	1	60
Total Wheeler County	18	1,885
Average per well		104.7
Grand total Panhandle	1,057	120,920
Average per well		114.7

EXPECT COAL STRIKE WILL AID MARKET

(Continued from Page 170)

during which the coal industry, due to low prices, has been active in endeavoring to win back these consumers to the use of coal.

Large Stocks

The bituminous coal industry has been preparing for the strike for several months and as a result the strike will open with the largest stocks on hand in the history of the industry. These stocks are so large that one writer estimated they could be drawn on at the rate of 1,000,000 tons a week for 40 weeks before a serious shortage would develop.

Railroads, public utilities and large industrial consumers for months have been adding to their stocks so that they now have a supply on hand sufficient in many cases to last several months without additional purchases. To supply this demand the mines have been operating near capacity with a record movement of coal. The coal movement for the week ending March 5, totaled 220,179 cars, an increase of 31,345 cars over the corresponding week of the previous year.

Data collected by the Government show that a total of 13,269,000 tons of bituminous coal was mined during the week, an increase of approximately 3,000,000 tons over the corresponding week of the previous year. The total production this year up to March 5 totaled 552,681,000 tons. For the same period in 1926 the production of bituminous coal totaled 501,566,000 tons. The actual consumption of coal this year does not exceed that of last year which means that the increased production has gone to storage.

There has also been a large increase in the production of anthracite coal. The accumulative production this year up to March 5 totaled 87,393,000 tons or almost twice as much as the same period last year.

Prices Low

Despite this large movement since the first of the year, the price trend on bituminous coal has been downward. The following table prepared by the Coal Age shows this price trend for the past four weeks and also the corresponding weeks of 1926 and 1925:

Bituminous Coal F. O. B. Mines

	1927 Mar. 14	1927 Mar. 7	1927 Feb. 28	1927 Feb. 21	1926 Mar. 15	1925 Mar. 16
Index	171	170	171	173	168	165
Weighted average price	$2.07	$2.06	$2.07	$2.09	$2.03	$1.99

The index is based on the 1913 price at 100. The weighted average price is based on quotations from several representative fields in all parts of the country.

These present prices are near the low since the prewar period. The market has been slumping since November, the peak of a sensational advance which was a development of the British coal strike. In November the weighted average price given in the table advanced to slightly over $3.00

The effect of the British coal strike on the markets in this country is interesting in connection with the present situation. At the time the British strike started it was contended it would not have any effect on the American market. It was stated that the large stocks on hand would take care of foreign requirements for several months.

Despite these claims, however, foreign buyers started increasing their purchases in this country almost as soon as the strike started and within a few weeks the market in this country started to advance. This advance continued until the strike ended in November giving the coal industry here the first active demand it had experienced in three years.

In connection with the coal strike in this country, one angle is uncertain at this time. It is claimed by the operators that with the shutdown of the union mines, the production of the nonunion mines will increase and thus postpone indefinitely any shortage of coal. It is also said that some of the operators will meet the demands of the miners in regard to wage scale and these mines will also continue. Writers in touch with the situation agree that the accuracy of these claims cannot be determined until after the strike occurs.

DOMESTIC GASOLINE GRADES ADVANCE

(Continued from Page 30)

firmer tone in that grade in all Mid-Continent areas.

April Buying

As March was being brought to a close, there were the usual amount of speculative offers for the following month. Outside of the agreements based on the published quotations on date of shipment, relatively few sales were completed for April. Relative to gasolines, the sellers generally wanted ¼ to ½ cent above the present spot market for April delivery, while the buyers were attempting to shade present quotations for delivery over the next 30 days.

Buyers and sellers agreed that the April market is largely dependent on developments in the crude market and also weather conditions. A firm crude market and favorable weather would probably bring slightly higher gasoline prices during April. The opposite situation would react to the benefit of the buyers.

In other products some business was reported on a flat price over April. One gas oil sale was reported on a basis of 3 cents over the month. Other sales indicated that some of the refiners are anticipating lower fuel oil prices over April. In general, sellers were adverse to speculating on the April market, the attitude apparently being (as stated by one refiner) that "market could not be worse in April than it was in March."

Gasolines and Naphtha

Gasoline last week moved from Oklahoma and other points in the Mid-Continent to buyers located as far east as the New England states. Some of the eastern refiners were apparently willing to meet this Mid-Continent competition and sales to buyers outside the normal Mid-Continent marketing territory were not as large the past few days as previously. Refiners, who the fore part of last week were willing to sell U. S. Motor gasoline at 6¼ cents reported more business than they could handle. These buyers were attempting to buy at 6⅜ cents the first of the week.

The 60-62 400 gasoline is probably the weakest of the gasoline grades. The domestic demand for that grade has fallen off, due to the fact that cold weather demand for the high gravity grades is about over, and there also has been no export demand for that grade. Sales as low as 6¾ cents were reported in Oklahoma and North Texas, although the general market was 7 to 7¼ cents. Outside of the 2,000,000 North Texas market previously mentioned, there was no activity in the 64-66 375 grade and price quotations were the same as the previous week. Manufacturers of naphtha and the lower gravity gasolines advanced their price along with the U. S. Motor grade.

Natural Gasolines

Considerable buying the first of this week materially improved the natural gasoline market. The Sinclair Refining Co. was reported to have purchased 200 cars of Grade C and BB. At least two other buyers were active. This buying absorbed all of the 3½-cent Grade C. The Sinclair buying was divided among the small manufacturers, thus taking off the market a lot of distress material.

The greater demand also improved the price position of Grade BB, several sellers boosting their quotation to 4¼ cents. Grade B was selling at 4¼ to 4½ cents, Grade AA at 4½ cents, and Grade A 5 to 5¼ cents. A few sales of Grade A were reported last week at 4¾ cents.

Fuel and Gas Oils

Opinions regarding fuel oils varied considerably during the week. Several refiners have not reduced their quotations and claim to be moving limited quantities at the old prices. The slump in the gas oil market, which amounted to ½ cents a gallon, or 20 cents a barrel, for the week, weakened the high gravity fuels, and several sellers also found it necessary to reduce their quotations on the low gravity grades.

Lubricants and Wax

Lubricants, since the last general revision was made following a crude reduction, are now generally firm, and all manufacturers report a good movement. Wax, however, is an extremely weak product. No inquiries are being received, and no spot sales were reported during the week.

Wax is available as low as 3 cents in Oklahoma. The largest manufacturer in the State, however, is not quoting. The slump in wax prices is explained as being due to a falling off in the export demand. Foreign buyers got out of the market when crude oil prices began to decline, and no activity is expected until the crude market is stabilized.

CONVENTION SIDELIGHTS

(Continued from Page 33)

representative, Jack Kennedy, along to help out.

When M. M. Valerius stepped before the footlights at the "Rockhound Revue" held in the Akdar Theater to make an announcement and said, "We have been given this theater—" Bill Longmeyer won the concrete toothbrush by shouting "Thank you."

When Arthur Truex gets tired of geologizing, he can make a living by going back around Rochester, N. Y., and doing blackface work. "True" and Al Jolson have one thing in common—they both sing with their mouths.

The strains of "Sweet Adeline" were conspicuous by their absence.

Now that it's all over, Dusty Dustin, Russ McFarland and Luther White can take some time off and get acquainted with their families again.

Men who have been attending two or three conventions annually for many years were unanimous in declaring the Tulsa convention was the best handled

and arranged in their whole experience. Frank Herald, who had charge of the registration, had evolved a system which expedited matters, eliminated all confusion and started everyone on his way rejoicing and singing the praises of the Tulsa Geological Society and its committee on arrangements.

Newspaper men covering the convention voted Luther H. White, chairman of the publicity committee, "the best newspaper man at any convention." Luther was on the job day and night and had an uncanny knack of always being able to find immediately the very man the newspaper man had been hunting. His tips on who to see and what to ask certain men certainly bore fruitful results as may be ascertained if the columns of space devoted to the convention by newspapers everywhere be measured.

Standard of Calif. States Position Regarding Seal Beach

The Standard Oil Co. of California has issued the following statement regarding the town lot development at Seal Beach:

"At the present time in California there are approximately 58,000 bbls. per day of crude oil production shut in. Notwithstanding that fact, the present production of crude in California is far in excess of the quantity required to supply markets naturally tributary to California from a freight cost standpoint. This situation has, during the past few years, compelled the oil industry of California to seek other markets for the surplus production here, which markets have been secured in competition largely with oil produced east of the Rocky Mountains.

"The present great flush production of crude oil east of the Rockies has been reflected in very heavy and sharp declines in the price of crude and of its finished products. Still further complicating the situation from the California standpoint is the fact that the great demand for tanker tonnage has resulted in the high charter rates existing at the present time. All of these factors mean that any increased production in California will have to be stored in California.

"In the town lot section of Seal Beach Field, in an area of 100 acres, there are now 64 derricks erected and locations made for many more. In one instance there are six derricks on less than one acre. All of these wells now drilling should normally be completed about the same time, and their combined initial production has been variously estimated at from 50,000 to 75,000 bbls. per day. In view of the close drilling, production at the rate mentioned can last but for a very brief time, and the decline in the field, after the peak has been reached, should be very rapid. The installation of costly facilities, such as pipe lines, tanks, etc., to handle the peak production, will entail a heavy economic loss. It is obvious, therefore, if this unfortunate loss must be encountered, that it will be reflected in the price of the crude oil handled through these new facilities and to an extent that will justify the buyer in hoping to ultimately be reimbursed for his loss in facilities and the storing of the oil.

"The Standard Oil Co. of California is unwilling at this time to obligate itself to purchase crude oil in this town lot area, but if the present attitude of the company should be modified it would only be on the basis of purchase with limitations. It is impossible at the moment to anticipate what these limitations may be, but aside from a price discount, restricted to that area, they may include, as has been done in the Mid-Continent Field, cash payment for only a part of the oil and a charge for cost of storage on the balance, with final payment to be made at some time in the future; a limit as to the maximum amount that will be taken from any one property or well, and such further limitations as may seem desirable."

$2,101,000 PAID FOR SIX OSAGE LEASES—TOP PRICE WAS $645,000

By James McIntyre

At the present market price of Burbank crude oil, the Kewanee Oil & Gas Co. pledged itself to pay the equivalent of nearly 489,000 bbls. of net production for the privilege of drilling on a 160-acre tract of Osage land at Monday's auction sale of Osage Indian leases held in Pawhuska, Okla. In other words, the company bid in the northeast quarter of Section 3-26-6 for $645,000. The company was compelled to bid the property up to the figure named because the Lewis Oil Co. appeared to want it as badly as the Kewanee. The bids started at $25,000 and were seesawed between the Kewanee Oil & Gas Co. and the Lewis Oil Co. until the end, when George Parker, bidding for the Lewis Oil Co., became discouraged, or got a creak in his neck from too frequent nodding, and the tract was knocked down to the Kewanee, which is a Pennsylvania company long in the oil business in Oklahoma.

While $645,000 was the largest price paid at Monday's sale there were other high prices paid when the present and immediate future state of the oil market is considered. Altogether $2,435,700 was paid for leases of which sum six quarter sections represented $2,101,000, three of these being in Township 25-8, west of Pawhuska, and three in the Burbank district.

The lease bought by the Kewanee Oil & Gas Co. is south of the same company's producing property in the southeast quarter of Section 34-27-6, for which it paid $300 and which had produced up to March 2 of this year a total of 186,544 bbls. It has been producing only three months and is not yet fully drilled. The Kewanee owns the whole of Section 34-27-5, and paid only $300 each for three quarters and $70,000 for the fourth quarter.

Widely Varying Prices

The two quarters just north of the Kewanee property went at widely different prices. The Skelly Oil Co. paid $555,000 for the southwest quarter of Section 27-27-6, which is also just east of a producing lease of the Gypsy Oil Co. The lease south of it has produced 388,668 bbls. since last October, 1926. The Texas Company got the southeast quarter of Section 27-27-6 at its bid of $20,500 without much opposition. This lease lies north of one of the Kewanee's good producing pieces in Section 34 and the wide difference of $555,000 and $20,500 paid for two leases both north of good properties is hard to explain, excepting that the more easterly lease is nearer the edge of the Burbank Field.

George Parker, bidding for the Lewis Oil Co., on the southwest quarter of Section 28-26-6, south of the line of producing properties, wanted it more than other bidders did, and got it for $251,000. The Phillips Petroleum Co. and Skelly Oil Co. both desired this property which lies south of a Skelly producing lease and southeast of a Phillips Petroleum Co. producing property. When it came to the lease just east of it, the southeast quarter of Section 28 The Texas Company had little trouble in gathering it in at $16,000. Just west of the $251,000 lease is the southwest quarter of Section 29-27-6, which the Phillips Petrleum Co. bid in at $61,000.

East Side Leases Desirable

The real surprise of the day came just before lunch time near the close of the sale of east side leases. It appears that The Texas Company has a very excellent producing property in the northeast quarter of Section 30-25-8, on which it has 12 wells which are now making about 1,200 bbls. a day from the Burgess sand around 2,400 feet. It is one of the properties taken over when The Texas Company bought the Lewis Oil Co.'s Osage properties last year. One well on the lease has produced 195,000 bbls. since June, 1925. About 15 feet of Burgess sand underlies the property and the oil runs around 38-39 gravity. The three other quarters in Section 30 were put up for sale, also the lease just northeast of The Texas Company's property. The southwest quarter of Section 20-25-8 was knocked down to The Texas Company for $20,500, but the Prairie Oil & Gas Co. had its eye on the northwest quarter of Section 29 and entered into a hot contest with The Texas Company forcing the latter to pay $165,000 for it. The Prairie company also wanted the southeast quarter of Section 30 to the extent that The Texas Company was made to pay $305,000 for it. The Prairie succeeded in landing the southwest quarter of Section 30 for $180,000. It is said the Prairie and The Texas Companies will enter into a partnership arrangement on the northwest quarter of Section 30. These unexpectedly high prices were much discussed during the lunch period and whetted the appetite of the comparatively small crowd for larger prices at the afternoon sale.

The absence of the Carter Oil Co., the Sinclair Oil & Gas Co. and the Gypsy Oil Co. among the bidders was remarked. All of these companies were represented by observers, but their large production in the Seminole Field caused them to lose interest in the Burbank district.

As was expected a large number of tracts were "passed" for lack of bidders.

Supt. J. George Wright made the announcement that the Department of the Interior would grant an additional year in which to complete a well, which may have stimulated the buying. It was announced that all properties purchased at former sales and not yet developed would be granted an extension of one year in which to complete the first well, but that a rental of 25 cents per acre per quarter year would be charged in the second year.

Following were the tracts sold with the purchasers and the bonus prices paid:

LIST OF TRACTS SOLD AT OSAGE INDIAN LEASE SALE AT PAWHUSKA, OKLA., MARCH 28, 1927

Tract No.	Description—	Bonus Price Paid	Purchaser—
1	NE 7-21-12	$ 300	Kewanee Oil & Gas Co.
2 Fr.	SE 22-21-12	300	Commercial Drilling Co.
3	NW 27-21-12	300	Commercial Drilling Co.
6	NE 33-22-12	1,000	A. G. Oliphant
7	NE 6-27-12	300	Wah-Sha-She Oil Co.
8	SE 6-27-12	300	Wah-Sha-She Oil Co.
10	NW 31-27-12	300	D. F. Millard
13	NW 17-29-12	300	H. P. White
15	SE 30-29-12	300	I. D. Simons
18	SE 10-20-11	1,800	Devonian Oil Co.
29	SE 11-22-11	300	J. H. Winemiller
30	SW 11-22-11	300	J. H. Winemiller
33	NE 11-27-11	300	Midland Oil Co.
34	SE 11-27-11	300	Midland Oil Co.
42	NE 15-20-10	300	New England Oil & P. L. Co.
43	SE 15-20-10	300	New England Oil & P. L. Co.
44	SW 15-20-10	300	New England Oil & P. L. Co.
45	NW 22-20-10	400	
46	NW 34-20-10	400	Willard et al
48	SE 8-21-10	300	H. H. Mundy et al
49	SW 9-21-10	300	H. H. Mundy et al
52	SE 30-21-10	400	Devonian Oil Co.
53	NE 31-21-10	300	Devonian Oil Co.
54	NW 31-21-10	300	Devonian Oil Co.
56	SE 5-22-10	1,100	Sam Sitrin
61	SE 6-23-10	300	J. A. Presbury
62	NW 11-23-10	300	W. H. Winemiller
67	SE 32-23-10	300	L. T. I. Oil Co.
83	SE 6-21- 9	300	Osage Oil Syndicate
84	SW 6-21- 9	300	Osage Oil Syndicate
85	SE 11-21- 9	300	Ohio-Osage Oil Co.
86	SW 12-21- 9	300	Ohio-Osage Oil Co.
87	NE 14-21- 9	700	Ohio-Osage Oil Co.
88	NE 29-21- 9	1,100	J. H. Finney
89	SW 29-21- 9	1,200	J. H. Finney
91	SE 12-22- 9	300	Ray Branstetter.
95	NW 32-22- 9	300	J. H. Davis
98	SW 10-23- 9	400	Ernest McCarty
104	SW 3-24- 9	2,600	Gray Oil Co.
105	SW 5-24- 9	3,200	A. G. Oliphant
106	SW 5-24- 9	300	A. G. Oliphant
107	NW 17-24- 9	400	Ernest McCarty
108	SE 30-24- 9	300	I. D. Simons
109	NW 35-25- 9	600	Peters Petroleum Corp.
112	SW 17-26- 9	300	Home Royalty Co.
118	NW 17-27- 9	300	Peters Petroleum Co.
135	SW 5-22- 8	300	Wrightsman Petroleum Co.
136	SE 8-22- 8	300	Home Royalty Co.
137	SW 8-22- 8	300	Wrightsman Petroleum Co.
138	SE 15-22- 8	300	Devonian Oil Co.
139	SW 18-22- 8	300	Devonian Oil Co.
142	NE 32-22- 8	300	Home Royalty Co.
143 Fr.	SE 32-22- 8	200	Wrightsman Petroleum Co.
144	NE 34-22- 8	400	Skelly Oil Co., Oklavania Oil Co. and Clint Moore estate.
145	SE 36-22- 8	700	H. H. Mundy
146	NE 15-23- 8	300	J. A. Presbury
147	NW 15-23- 8	300	J. A. Presbury
151	NE 1-24- 8	500	Home Royalty Co.
152	SE 1-24- 8	1,100	A. G. Oliphant
154	SE 5-24- 8	9,100	The Texas Company
155	NE 12-24- 8	300	A. G. Oliphant
156	NE 15-24- 8	700	McCuen, Wurmser & Pinney.
157	SW 19-24- 8	2,100	I. T. I. Oil Co.
158	SW 29-24- 8	300	A. G. Oliphant
159	SE 34-24- 8	4,600	Gray Oil Co.
163	SW 16-25- 8	300	A. G. Oliphant
164	SE 17-25- 8	300	A. G. Oliphant
165	SW 20-25- 8	20,500	The Texas Company
167	NW 30-25- 8	165,000	The Texas Company
168	SE 30-25- 8	305,000	The Texas Company
169	SW 30-25- 8	180,000	Prairie Oil & Gas Co.
171	SW 5-26- 8	300	Home Royalty Co.
182	NW 19-27- 8	300	W. J. Sherman
186	NW 5-28- 8	300	Beacon Oil Co.
187	SW 6-28- 8	300	Beacon Oil Co.
	WEST SIDE		
212	NE 21-23-7	$ 800	Devonian Oil Co.
213	NW 21-23-7	800	Peters Petroleum and Producers & Refiners Corp.
214	SE 21-23-7	400	T. J. Leahy
215	SW 21-23-7	800	Peters Petroleum and Producers & Refiners Corp.
220	NE 29-24-7	1,000	Laurel Oil & Gas Co.
221	NW 29-24-7	1,200	Galt Brown, Inc.
222	SE 29-24-7	1,000	Cortez Oil Corp.
223	SW 29-24-7	900	Peters Petroleum and Producers & Refiners Corp.
225	NW 3-24-7	300	Walter Wagner
232	NE 24-25-7	13,500	Prairie Oil & Gas Co.
233	NW 24-25-7	4,000	Tidal Oil Co.
234	SE 24-25-7	7,000	George Parker
235	SW 24-25-7	4,000	Mid-Continent Petroleum Corp.
236	SE 36-25-7	1,600	Ernest McCarty
240	SW 12-26-7	300	C. J. Wrightsman
241	NE 13-26-7	1,000	Galt Brown, Inc.
242	NW 18-26-7	400	Jess Moore
243	SE 18-26-7	1,100	Laurel Oil & Gas Co.
244	SW 18-26-7	500	W. M. Moore.
253	NE 19-27-7	300	Galt Brown, Inc.
255	SE 19-27-7	300	Galt Brown, Inc.
313	SE 11-25-6	1,600	Mid-Continent Petroleum Corp.
314	SW 11-25-6	4,000	Mid-Continent Petroleum Corp.
315	NE 14-25-6	4,000	Laurel Oil & Gas Co.
316	NW 14-25-6	5,400	Tidal Oil Co.
319	NE 35-25-6	300	Galt Brown, Inc.
321	NE 3-26-6	645,000	Kewanee Oil & Gas Co.
322	SW 3-26-6	1,900	George Labadie, Pawhuska.
323	NE 11-26-6	8,000	Phillips Petroleum Co.
324	NW 11-26-6	75,000	George Parker.
325	NE 15-26-6	4,100	Empire Gas & Fuel Co.
326	SE 28-26-6	16,000	The Texas Company.
327	SW 28-26-6	251,000	George Parker.
328	SE 29-26-6	6,200	Phillips Petroleum Co.
333	SW 6-27-6	3,100	The Texas Company.
334	NW 14-27-6	2,000	I. T. I. and Foster Petroleum Co.
335	NE 15-27-6	2,100	I. T. I. and Foster Petroleum Co.
336	SE 17-27-6	61,000	Phillips Petroleum Co.
337	SE 27-27-6	20,500	The Texas Company.
338	SW 27-27-6	555,000	Skelly Oil Co.
345	SW 21-28-6	300	Peters Petroleum Corp.
346	NW 28-28-6	300	Peters Petroleum Corp.
347	NE 29-28-6	700	Peters Petroleum Corp.
383	NE 14-26-5	300	P. M. Moss.
394	SE 28-26-5	300	Jess Moore, Kaw City.
396	NE 36-26-5	300	H. H. Mundy, Pawhuska.
397	NW 36-26-5	700	H. H. Mundy, Pawhuska.
398	SE 36-26-5	1,100	Ernest McCarty.
399	SW 36-26-5	700	Jess Moore.
400	SE 27-27-5	500	Smith, Leahy & Everett Prue.
454	NE 23-26-4	700	Skelly Oil Co.
455	NW 23-26-4	300	Skelly Oil Co.
456	SE 23-26-4	700	Skelly Oil Co.
457	SW 23-26-4	700	Skelly Oil Co.
	Total	$2,435,700	

NORTH AND WEST TEXAS

(Continued from Page 41)

versity flowed 147 bbls. at 2,993-3,003 feet. Marland Oil Co.'s No. 2 Hughes-B was abandoned as dry at 2,425 feet and No. 4 Hughes-C was plugged at 2,460 feet.

Simms Oil Co. and Atlantic Oil Producing Co.'s No. 3 University flowed 4,500 bbls. the first 11 hours from pay topped at 2,871 feet and drilled at 2,924 feet. It started filling up at 2,885 feet. Same company's No. 1 University-B flowed 275 bbls. after a 100-quart shot at 2,950-3,000 feet. Tidal Oil Co.'s No. 1 University-F was drilled deeper from 2,902 feet to 2,948 feet and gauged 4,111 bbls.

Crockett County

Young & Cromwell's No. 1 Shannon was plugged and abandoned at 3,012 feet. It had sulphur water at 2,550 feet.

Glasscock County

Southern Crude Oil Purchasing Co.'s No. 1 Bell (formerly Plateau Oil Co.'s) was abandoned as a failure at 3,201 feet.

Howard County

Marland Oil Co.'s No. 1 D. Chalk was a 50-bbl. producer after a 10-quart shot at 1,702-12 feet, total depth 1,714 feet; No. 1 Chalk-E swabbed 175 bbls. at 1,678-88 feet and was shut down for storage.

Reagan County

Big Lake Oil Co.'s No. 100 University flowed 70 bbls. from 2,928-30 feet. Texon Oil & Land Co.'s No. 60 University, Group 1, pumped 25 bbls. at 3,003-45 feet; No. 66 flowed 150 bbls. at 2,873-2,913 feet; No. 67 flowed 407 bbls. at 2,916-50 feet; No. 68 pumped 15 bbls. at 2,952-68 feet, and No. 69 flowed 101 bbls. at 2,922-42 feet.

Upton County

Dixie Oil Co.'s No. 18 Burleson swabbed 530 bbls. with a little water from pay topped at 1,895 feet and drilled to 2,040 feet then plugged back 10 feet. Nos. 15, 16 and 17 were flowing into the same tank and producing 1,760 bbls. March 23. Same company's No. 20 Burleson made 127 bbls. from pay topped at 2,175 feet and drilled to 2,230 feet.

Independent Oil & Gas Co.'s No. 7 Taylor was abandoned at 3,728 feet.

Prairie Oil & Gas Co.'s No. 3 Lane flowed 700 bbls. the first 18 hours at 2,065-75 feet and at latest report was flowing 675 bbls. daily. Same company's No. 4 Lane flowed 500 bbls., 5 per cent sulphur water, from pay at 1,935-2,032 feet, but when put on the pump was good for only 100 bbls.

Roxana Petroleum Corp.'s No. 12 Bowen topped the big pay at 2,078 feet and was drilled to 2,132 feet where it flowed 300 bbls. with some water. It was plugged back to 2,106 feet and gauged 307 bbls. initial with the water shut off. It now flows 250 bbls. First pay in this well was at 2,060 feet. Same company's No. 13 Bowen flowed 680 bbls., no water, from pay at 2,046-2,114 feet. First flow came at 2,060 feet. No. 14 Bowen flowed 300 bbls. in 14 hours, no water, at 2,070-2,136 feet, and at latest report was gauging 288 bbls.

Simms Oil Co.'s No. 2 Shirley made 37 bbls. from pay at 2,160-70 feet. Skelly Oil Co.'s No. 1 Jones was dry and abandoned at 3,595 feet. Sun Oil Co.'s No. 1 Baker swabbed 40 bbls., no water, from 2,253-85 feet. Texas Pacific Coal & Oil Co.'s No. 2 Lane-A flowed 430 bbls. with no water, pay being 2,043-50 feet. It was shut down for storage.

NORTH CENTRAL TEXAS COMPLETIONS

Archer County

Apple & Brandeberry's No. 1 Griffin was dry and abandoned at 2,008 feet. L. T. Burns' No. 2 Turbeville-E swabbed 25 bbls. an hour from pay at 1,438-70 feet. Christie & Maddox' No. 1 Key was a failure at 1,508 feet. C. A. Everts' No. 1 Wilson was also a dry hole at 1,668 feet.

Grisham and others' No. 1 Kunkel was plugged and abandoned at 1,506 feet. A. W. Johnston's No. 2 Garvey was likewise a failure at 832 feet. So was Leath and others' No. 1 Abercrombie & Taylor, at 1,505 feet.

Pandem Oil Corp.'s No. 9 Hudson was good for 40 bbls. after a shot of 11 quarts at 1,141-52 feet. Plains Production Co.'s No. 3 Lyles made 125 bbls. initial at 1,548-50 feet. Pois & Schultz' No. 3 Miller pumped 20 bbls. of oil and 30 bbls. of salt water from sand at 1,575-80 feet, total depth 1,585 feet. Roamer Oil Co.'s No. 1 Clogett was abandoned as a duster at 1,411 feet. Royal Petroleum Co.'s (formerly Maer & Staniforth's) No. 1 Wilson had sand at 1,545-47 feet and was good for 82 bbls. of oil and 15 bbls. of salt water.

Simms Oil Co. and L. T. Burns' No. 8 Turbeville-A pumped 60 bbls. at 1,448-70 feet; No. 9, on the same lease, made 80 bbls. at 1,452-67 feet.

Tackett and others' No. 1 Prideaux was a failure at 694 feet. The Texas Company's No. 1 Hayter was also dry at 1,502 feet; No. 1 Turbeville-F was likewise dry at 1,753 feet. United Producers and Petroleum Producers' No. 1 Turbeville-B swabbed 450 bbls. at 1,461-74 feet. Wilson & Russell's No. 7 Prideaux made 65 bbls. at 659-68 feet, total depth 669 feet.

Clay County

H. C. Dean's No. 1 Dean was dry and plugged at 1,353 feet.

Cooke County

American Refining Co.'s No. 10 Dennis pumped 100 bbls. from sand at 1,262-1,302 feet. Camp, Heydrick and Oil Operators' Trust Co.'s No. 3 Kleiss was officially completed for 20 bbls. from sands at 1,311-16, 1,328-44 feet, total depth 1,345 feet. Chapman & Lanier's No. 1 Montgomery pumped 126 bbls. of oil and 5 bbls. of salt water after plugging back from 1,327 to 1,318 feet. Top of sand is 1,310 feet.

Fain-McGaha Oil Corp.'s No. 1 Otto is estimated a 30-bbl. well at 963-67 feet, total depth 970 feet, but not completed. J. K. Hughes Developing Co.'s No. 5 Embry had broken oil sand from 1,214 to 1,258 feet but 500 feet of salt water was in the hole. It was plugged back to 1,241 feet and completed for a 30-bbl. pumper.

Kewanee Oil & Gas Co.'s No. 19 Dennis made 20 bbls. at 1,278-1,303 feet; No. 20 Dennis was good for 80 bbls. at 1,278-1,315 feet. Oil Operators' Trust Co.'s No. 1 Kleiss made 42 bbls. at 1,292-1,307 feet. Sun Oil Co.'s No. 1 Dennis swabbed 27 bbls. of oil and 1 bbl. of salt water from oil sand at 1,163-67 feet and broken sand 1,167-1,205 feet. Turman & Maxwell's No. 1 Alexander was dry and abandoned at 2,083 feet.

Denton County

Rondeau & Sandford's No. 1 Atkins was plugged and abandoned at 2,024 feet.

Jack County

Seaboard Oil & Gas Co.'s No. 4 C. K. Cullers was completed for 25 bbls. at 2,088-95 feet.

Montague County

Arco Oil Co.'s No. 5 Howard made 30 bbls. from sand at 1,142-53 feet; No. 4 Salmon and others-B produced 19 bbls. at 906-22 feet. Cato Oil Co.'s No. 2 Howard made 15 bbls. at 1,366-1,400 feet.

Continental Oil Co.'s No. 8 Jones was dry and abandoned and the location for No. 18 Howard was also abandoned.

Humble Oil & Refining Co.'s No. 4 Howard made 14 bbls. from sand at 1,185-88 feet after plugging back from 1,211 feet to 1,197 feet. Pure Oil Co.'s No. 7 Maddox-C made 40 bbls. at 878-915 feet. The Texas Company's No. 2 Howard-C swabbed 85 bbls. and later pumped 78 bbls. from sand at 1,152-79 feet.

Throckmorton County

Humble Oil & Refining Co.'s No. 3 Stubblefield was drilled to 4,290 feet and plugged back to 3,900 feet. After a 40-quart shot in pay from 3,871-91 feet it swabbed 126 bbls. Same company's No. 2 Graham swabbed 35 bbls. of oil and 2 bailers of salt water from sand at 1,811-19 feet and was put on the pump. Reiter-Foster Oil Co.'s No. 4 Graham swabbed 135 bbls. the first 12 hours and 210 bbls. in 24 hours from sand at 1,819-31 feet.

Wichita County

Alexander & Barnes' No. 1 Griffin and others was dry and abandoned at 2,004 feet. Bridwell & Heydrick's No. 3 Griffin was also a duster at 1,869 feet and so was Cooper & McLaughlin's No. 5 Love at 495 feet.

Barney Cockburn's No. 2 Michna was a duster at 1,999 feet and so was Cullum Drilling Co.'s No. 1 Kemp at 1,850 feet. Dale Oil Corp.'s No. 22 Burnett pumped 30 bbls. at 1,374-81 feet but No. 23 was dry and abandoned at 1,400 feet.

Harry Hines' No. 4 State Land swabbed 55 bbls. at 1,783-99 feet. Magnolia Petroleum Co.'s No. 16 Honaker was plugged as a dry hole at 2,095 feet; No. 1 Obenhaus was likewise abandoned at 2,065 feet. Sheldon and others' No. 1 Sheldon was a failure at 2,027 feet.

Wilbarger County

Barkley & Meadows' No. 9 Stephens-B had lime at 2,023-48 feet and water sand 2,053-66 feet. It was plugged back to 2,053 feet and estimated good for 60 bbls. on the pump. Milham Corp.'s No. 9 Waggoner-B pumped 60 bbls. at 2,540-61 feet; No. 2 Waggoner-H pumped 26 bbls. at 2,586-2,600 feet; No. 21 Waggoner-L made 50 bbls. on 125 pounds air pressure, lime being at 2,337-63 feet and sand 2,370-85 feet; No. 1 Waggoner-M was dry and abandoned at 3,004 feet.

Phillips Petroleum Co.'s No. 6-A Waggoner-CC flowed 80 bbls. the first 15 hours through tubing and packer. Lime was at 2,326-50 feet, broken sand 2,350-62 feet and oil sand 2,362-72 feet; No. 19 Waggoner-QQ pumped 125 bbls. from sand at 2,371-93 feet, total depth 2,395 feet. Roxana Petroleum Corp.'s No. 1 Milner pumped 68 bbls. from broken sand 1,459-81 feet and oil sand 1,481-97 feet.

Young County

Continental Oil Co. & Francis' No. 5 Benson made 28 bbls. from 910-14, and 930-34 feet, total depth 950 feet. Panhandle Refining Co.'s No. 5 Mathews made 40 bbls. at 712-51 feet; No. 6 made 86 bbls. from 705-43 feet. Robert Oil Corp.'s No. 1 Prideaux-C made 12 bbls. at 506-25 feet. The Texas Co.'s No. 2 Graham was dry at 1,220 feet. Seaboard Oil & Gas Co.'s No. 3 Graham made 70 bbls. at 2,601-19 feet.

NORTH CENTRAL TEXAS

Estimated Production for Week Ending March 26, 1927

Ranger District—	This Week	Last Week
Brown County	21,765	23,550
Callahan County	5,650	5,400
Coleman County	1,590	1,650
Comanche County	1,530	1,540
Palo Pinto County	460	480
Ranger	6,950	6,990
Shackelford County	13,700	13,840
Stephens County	10,925	10,970
Total Ranger district	62,570	64,420
Wichita Falls District—		
Archer County	29,050	29,135
Baylor County	100	105
Clay County	735	730
Cooke County	1,415	1,400
Jack County	580	500
Montague County	13,480	13,600
Throckmorton County	1,770	1,800
Wichita County	31,900	32,025
Wilbarger County	13,960	14,120
Young County	8,880	8,900
Total Wichita Falls district	101,870	102,315
West Texas District—		
Big Lake Field	26,886	29,140
Crane County	27,536	22,160
Crockett County	1,632	1,605
Ector County	35	30
Garza County	5	5
Howard County	2,518	2,310
Jones County	2,772	2,460
Loving County	30	0
Mitchell County	4,103	4,350
Pecos County	923	170
Scurry County	30	35
Upton County	20,000	21,100
Winkler County	390	320
Total West Texas district	86,860	83,685
Grand total N. and W. Tex.	251,300	250,420
Increase	880	0

WEST TEXAS

Daily Average Production for Week Ending March 26, 1927
Crane and Upton Counties

Company and Lease—	Wells	Prod.
Atlantic Oil Prod., Sherk	1	40
Amerada Pet. Corp., Hughes	5	495
Church et al, University	1	53
Dixie Oil Co.:		
Burleson	16	2,947
Hughes	10	432
Eastland Oil & Collett, University	1	3,715
Gulf Prod. Co.:		
Baker	1	5
Baker-B	2	80
Hughes	4	280
Lane-C	1	150
Crier-McElroy	5	2,250
J. T. McElroy	7	6,575
Crier-McElroy-A	3	2,830
Sherk-E	1	60
State-Lassiter	2	2,500
Estep	2	0
Humble Oil & Ref. Co.:		
Burleson	4	53
Ricker	3	326
University	1	348
Independent Oil & Gas Co.:		
Burleson	5	121
Hughes	1	16
Taylor	9	531
Wooley	10	905
Magnolia Pet. Co.:		
University-Church	4	96
University-Hardwick	1	15
O'Keefe	5	484
State-Lassiter	1	24
Marland Oil Co.:		
Baker-A	1	25
Benton land	1	3
Burleson	31	1,150
Burleson-A	3	35
Burleson-B	1	10
Cowden-A	3	130
Cowden-B	1	175
Durham	3	28
Estep	8	1,245
Gibbs	2	225
Hughes	1	10
Hughes-B	1	9
Hughes-C	3	61
Hughes-D	6	690
Hughes-Gibbs	2	30
Keith-Zoch	3	213
Sanger	20	634
Shirley	4	540
Shirley-A	1	23
Powell	3	530
McMan Oil & Gas Co.:		
Baker	1	0
Hughes	1	55
Prairie Oil & Gas Co.:		
Lane	4	675
University	6	494
Republic Prod. Co., Baker	5	180
Rio Grande Oil Co.:		
Estep	1	0
Chaney	1	0
Roxana Pet. Corp.:		
Bowen	14	3,584
Estep	3	86
Hughes	10	774
Simms Oil Co., Shirley	3	215
Simms & Atlantic:		
University	2	2,310
University-B	1	102
Sun Oil Co.:		
Burleson	8	301
Baker	2	130
The Texas Company:		
Burleson	4	75
King-Upton	12	701
King-Crane	9	337
Union Land-F	1	5
Texon Oil & Land Co., Sherk	1	0
T. P. Coal & Oil Co.:		
Sherk	4	169
Lane-A	3	1,820
Lane-B	1	82
Tidal Oil Co.:		
University-B	2	91
University-C	1	51
University-E	1	27
University-F	1	3,888
Wentz Oil Corp., Sherk	3	181
Total	271	47,536
Crockett County		
Cromwell, Powell	5	152
Gulf Prod. Co.:		
Powell-A, Tr. B	4	60
Powell-D	1	90
J. K. Hughes:		
Powell-A	3	235
Powell-B	1	40
Humble Oil & Ref. Co.:		
Powell	11	800
Sarg	1	40
Powell-B	1	60
Republic Prod. Co., Powell	1	137
Roxana Pet. Corp., Powell	1	18
Total	17	1,632
Ector County		
J. S. Cosden et al, G. W. Connell-A	1	26
Garza County		
Emerald Oil Co., Boren	1	5
Jones County		
Atlantic Oil Prod., Howell	1	85
Marland Oil Co., Mason	3	975
Midwest Explo. Co., Thornton	2	329
Phillips Pet. Co.:		
Walling-Tessie	3	515
Winters	2	415
Beasley	1	275
J. C. Mason	1	178
Total	13	2,772
Howard County		
Choate & Henshaw, O'Daniel	1	7
Gulf Prod. Co., Chalk	1	50
Humble Oil & Ref. Co., Douthit	2	65
Lockhart et al, Chalk	2	76
Lockhart & Carey, Scott	1	33
Magnolia Pet. Co.:		
Mary Chalk	3	152
Otis Chalk-A	5	200
Hyman Chalk	2	96
G. O. Chalk	4	186
Sarah Hyman	2	45
Marland Oil Co.:		
Fred-Hyer-Clay	2	347
H. R. Clay-A	2	206
Chalk	9	608
Chalf-A, L.	4	261
Otis Chalk-B	1	78
Otis Chalk-D	1	44
Reeves & Apperman, Clay	1	142
Total	42	2,518
Loving County		
Lockhart & Co., Allen	1	30
Pecos County		
Mid-Kansas & Trans.:		
Yates-A-3	3	671
Yates-B-1	1	252
Total	4	923
Scurry County		
Northwest Explo.:		
Newman	1	13
J. J. Moore	2	11
W. P. Welborn	1	7
Total	4	31

DEATH OF W. E. M'BRIDE

William E. McBride, pioneer oil man, died in the Queen of Angeles Hospital, Los Angeles, March 15. He was born in Armstrong County, Pennsylvania, and was well known in the eastern oil fields. He went to California 20 years ago.

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RUGGED - ENDURING

Moscicki Oil Distillation Process

Evaporation Occurs on Large Surfaces With Superheated Hydrocarbon Vapors Acting as Heat Transfer Medium

By Dr. Emeric Kroch*
Petroleum Engineer, New York City.

The distillation of crude oil is at present the only industrial method for separation of the different cuts. From the beginning of the oil refining practice, the trend of development has worked in two directions. One solution has been the transformation of the higher boiling hydrocarbons into the lower ones—a problem achieved practically today by the different methods of cracking. The other problem relates to the manufacturing of high viscosity lubricating oils from the crude. This problem is as old as the refining industry itself and many attempts have been made for a more satisfactory solution.

It will be of use to summarize here the main factors involved in industrial oil distillation. The hydrocarbon vapors being in contact with the liquid phase have the behavior of saturated vapors and their partial pressure is only a function of the liquid temperature. Distillation takes place when the sum of the partial pressures reaches a pressure above that of the liquid; this pressure being equal, lower or higher than atmospheric pressure.

Two ways are open in order to keep the distillation temperature of the liquid low—viz: the diminution of the pressure above the liquid (vacuum distillation) and the introduction of gases or vapors superheated above their boiling point (steam or inert gas distillation.) Sometimes both systems are combined in order to insure a greater efficiency and economy.

It is obvious that, theoretically, for the transformation of a mixed complex of hydrocarbons into the vapor phase, the boiling of the liquid is by no means essential. The boiling of a liquid whether it is a simple or a complex liquid, is characterized by a rapid evaporation not limited to its surface but active throughout the bulk of the liquid. Assuming that the space above the liquid is completely filled by the vapors, their concentration can be calculated from the gas equation. For the sake of simplicity, we will use the perfect gas equations, which, of course, do not apply exactly to this kind of vapors, but other sources of error would make a precision on this particular point illusive. One gram molecule of a gas occupies at 0°C and a pressure of one atmosphere, a volume of 22.4 liters. For a gas of the molecular weight=m, at the temperature of T°C absolute and at the pressure of P atmospheres, the formula reads as follows:

$$(I) \qquad Vm = 0.082 \times \frac{T}{P}$$

Vm being the volume in liters occupied by 1 g.-mol. of the gas. Or, in one cubic meter, there are:

$$(II) \qquad Q = \frac{1000}{0.082} \times \frac{mP}{T} = 12.150 \times \frac{mP}{T}$$

Q being the weight of the gas in g. per cubic meter.

For example, n-hexadecane $C_{16}H_{34}$ (Mol. Weight=226) has a boiling point of 287 degrees Centigrade. Assuming that the temperature of the vapors is equal to the temperature of the liquid and the pressure is equal to one atmosphere we have

$$Q = 12.500 \times \frac{226}{560} = 4.920$$

*The writer wishes to thank Dr. S. Pilat, general manager of the petroleum department of the Polish Government in Warsaw, formerly connected with the Dabrowa Oil Co., and Dr. Ralph H. McKee, professor of chemical engineering, Columbia University of New York, for their valuable help and advice in preparing this paper.

THEORETICAL FEATURES AND INDUSTRIAL PLANT

In this article the writer presents the main theoretical features underlying the Moscicki distillation process as well as gives a comprehensive description of the first industrial plant and its performance. The merits and demerits of the system and particularly of the first plant are discussed and methods of improvement and future development pointed out. Description of small-scale experiments and of their remarkable results conclude this article. The intention of the writer is to give an impersonal and impartial description of what leading European petroleum technologists have called "the most revolutionary step in oil refining" since the beginning of the oil industry.

The process carries additional interest in that it was devised by Prof. Ignace Moscicki some years before he became the president of Poland. President Moscicki has done much constructive work in the oil industry.

This means that in 1 cubic meter we have 4,920 g. of the hydrocarbon or about 45 G.P.M. (gallons per 1,000 cubic feet.)

Amount of Hexadecane

In the case of the steam distillation the actual amount of hexadecane in 1 cubic meter is smaller due to the presence of steam, but on the other hand the temperature of the vapors being lower, their density is consequently greater. The following example will make it clear:

Under the assumption that the quantity of steam amounts to 15 per cent of the weight of the hexadecane which is being distilled, we have in every steam bubble an equilibrium governed by Dalton's Law. Thus, the molecular weight of water being 18; we have 18/15=1.2 mols of H_2O, and 226/85=2.66 mols of $C_{16}H_{34}$. According to Dalton's Law, the partial pressure of H_{20} is=

$$\frac{1.2}{1.2+2.66} \times 760 = 236 \text{ mm Hg and of}$$

$$C_{16}H_{34} = \frac{2.66}{1.2+2.66} \times 760 = 524 \text{ mm Hg}$$

Using the Clapeyron formula in its integrated form and under the assumption of a latent vaporization heat L independent of the temperature, we have

$$\ln \frac{p_2}{p_1} = \frac{L}{R} \left(\frac{1}{T_1} - \frac{1}{T_2} \right)$$

p_1 and p_2 being the vapor pressure corresponding to the absolute temperatures T_1 and T_2. L^2 is the molecular heat of vaporization in calories and R the gas constant in the caloric units (R=1.99 cal.) The absolute temperature T_1 corresponding to a pressure of 524 mm Hg is to be found from the equation:

$$\ln \frac{760}{524} = \frac{12000}{1.99} \left(\frac{1}{T_1} - \frac{1}{287+273} \right)$$

Thus, T_1=541 degrees Centigrade absolute or 268 degrees Centigrade.

Thus the distillation takes place at 268 degrees Centigrade instead of 287 degrees and the amount of hexadecane vapor in 1 cubic meter will be

$$Q_1 = 12150 \times \frac{226}{542} \times \frac{524}{760} = 3500 \text{ g}$$

In other words, the action of 15 degrees of steam in distilling hexadecane under atmospheric pressure results in the lowering of the distillation temperature by 19 degrees Centigrade and yields a vapor mixture containing 3,500 g. of this hydrocarbon per cubic meter or about 32 G.P.M.

For more than one reason, as explained above, these figures cannot be considered as exact. However, they give comparable results, which was the purpose of this calculation pointing out the theoretical considerations underlying the Moscicki distillation process.

Low Temperature Distillation

In the low temperature distillation system of I. Moscicki, the evaporation occurs on large surfaces. Superheated hydrocarbon vapors act as the heat transferring medium and the separation of the different cuts from the complex vapor mixture is effected by means of fractional condensation.

Before entering into the details of construction and performance of the first industrial plant of this system, we will consider its main theoretical features. We will simplify the discussion as much as possible, by considering the low temperature distillation (evaporation) of hexadecane when using superheated heptane vapors.

Supposing we wish the evaporation of hexadecane to take place at a temperature of 220 degrees Centigrade (493 degrees absolute) which is considerably below its distillation temperature at atmospheric pressure and also below its distillation temperature in presence of 15 per cent steam. Using again the Clapeyron formula and the constants as above, we find the vapor pressure of hexadecane to be 176 mm. of mercury at 220 degrees Centigrade.

The result of the calculations using again formula II can be summarized as follows:

Superseding the fire or steam distillation of hexadecane by its evaporation in a stream of superheated heptane vapors at a temperature of 67 degrees Centigrade below the boiling point of the former, the ratio of quantities of the carrying medium to the liquid to be evaporated is about 1.5, while its actual concentration drops to about one-fourth of the value obtained by fire distillation.[3]

Moscicki Plant

Figure 1 represents a simplified flow sheet of the Moscicki distillation process in its original form. The crude oil enters the pump 1, which drives it through the heat exchangers where its temperature is raised to 150 degrees Centigrade. The oil then enters the evaporator I flowing from its top to the bottom. A part of the vapors formed (together with a part of those formed in the heat exchangers) is removed by a centrifugal blower and pushed through a tubular superheater where they are heated to 350 degrees Centigrade. A part of these hot vapors enters the lower part of the evaporator I, while the other part enters into the evaporator II. These vapors are the only heat supply of the entire system.

In evaporator I, the gasoline and kerosene fractions of the oil are vaporized by contact with the hot vapors, their quantity being adjusted to keep the temperature of the evaporator constant.

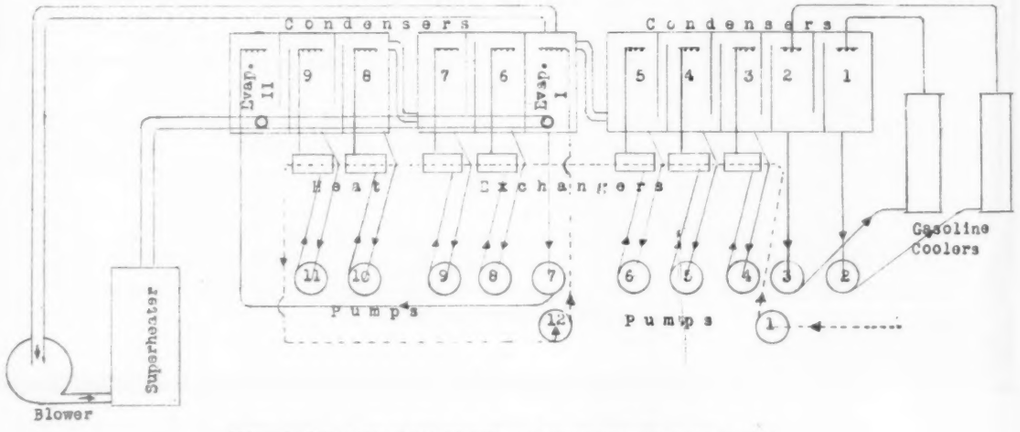

Figure 1—Flow sheet of the Moscicki low temperature distillation method.

The capacity of the blower being limited, the excess of the vapor mixture is driven by its own pressure into condensers 1 to 5. The separation of the cuts is effected by means of fractional condensation. Each condenser is connected with a centrifugal pump which removes the condensed liquid and drives it through the exchanger and then through an additional cooler (not shown in the diagram) into the top of the condensers. The liquid in each condenser is but slightly below the condensation temperature of the cut to be separated. In the condensers 2 and 1 where the most volatile gasoline fractions are obtained, two large water coolers are provided for cooling the circulating liquid.

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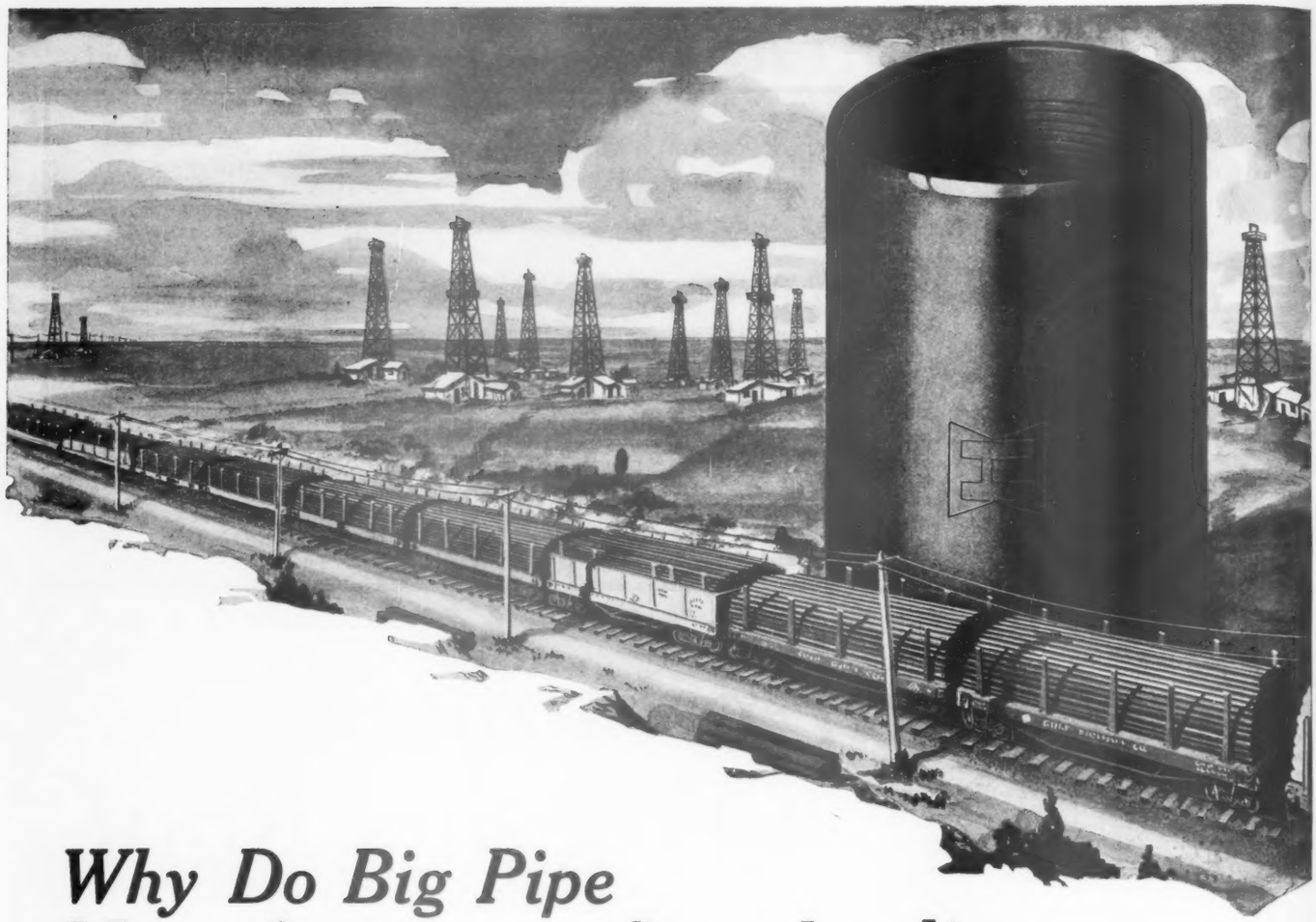

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densers must reach a certain quantity before the excess flows through other coolers (not shown in the diagram) into receiving boxes.

Disposal of Bottoms

The bottoms from evaporator 1 are taken by pump 7 and pumped into the top of evaporator II. Here the hot hydrocarbon vapors from the superheater maintain a temperature which is sufficient to largely vaporize the incoming liquid. The vapors are driven into the condensers 6 to 9. The heavier oil is condensed in 9, while gas oil is recovered in 6 and the intermediate products in condensers 7 and 8. The bottoms from evaporator II are cooled in a special cooler and drawn to a receiving tank outside of the distillation building.

The evaporators as well as the condensers are rectangular chambers made of sheet steel. They do not have to stand any pressure or vacuum and their construction therefore is light and inexpensive. Due to his great experience in absorption and vaporization processes, Moscicki recognized a regular and controllable flow of the liquid and of vapors as the principal condition permitting a uniform evaporation in thin liquid films and without formation of mist or fog. The Moscicki fillers are made of sheet steel (2 by 50 by 50 mm.) fitted with alternating openings and concave channels. The sheets are packed in sets in steel cases. The liquid flowing through a column of these fillers is distributed in a thin film over the sheets until the channels are filled and the overflow runs to the next sheet. The openings offer a large passage for the gas, its way being fixed and constant which is in contrast to the irregularity in the case of a gas flowing in ordinary baffle-filled towers.

Design of Superheater

The superheater is made of seamless steel tubes and is heated half indirectly by hot combustion gases circulating through the channels. The relatively low temperature of the hydrocarbon vapors in the tubes as well as their quick removal completely prevents any cracking and formation of a coke deposit on the inner surface of the tubes. The highest temperature, to which the hydrocarbon vapors can be safely superheated without cracking is a nearly definite temperature. A sufficient heating surface of the superheater tubes is therefore an essential factor for the good performance because the use of inadequate heating surface cannot be compensated by the use of higher temperatures.

The operation of a plant of this character requires special attention to certain factors, factors which are unknown or little known in the ordinary shell still or tube still operation. The heat transferring hydrocarbon vapor mixture must not include any possibilities of an explosion, which, of course, would be disastrous for the total plant, therefore air must be completely excluded from the system. Before starting to heat, the system must be stripped of its air content by a process of "rinsing" with an inert gas, for instance (if available), natural gas. Careful provisions must be made against any pressure excess or vacuum in the system. While the former problem offers no difficulty, the prevention of vacuum requires a special device, connected with a supply of inert gas for restoring the pressure.[5] Temporary vacuum ranging from 2 to 6 inches water has been observed during the operation of the plant and in many cases no good reason for same could be found.

One of the circulating hydrocarbon vapors may condense in the suction line of the blower, and provision must be made for their removal and return to the system. However, the system, when properly regulated, required no more attention than an ordinary distillation still and the work in the receiving house is rather simplified.

The velocity of the vapors in the system was calculated not to exceed 200 feet a minute, in order to avoid the formation of fog or mist. As a matter of fact, during the total period of operation of the described plant we had no trouble of this kind.

Other minor points relating to the starting of the operation must not be overlooked. The system must be heated to a certain temperature before the crude oil is brought into the evaporator, the inert gas with which it has been filled being used as heating medium until the hydrocarbon vapors replace it.

Before the different cuts accumulate in the condensers in the course of the operation, provision must be made for a suitable liquid for circulating and cooling. For this purpose, the lower parts of the chambers are filled with products obtained by ordinary distillation, each condenser being supplied with the corresponding fraction.

It is perhaps needless to add that the usual emergency devices, such as bypasses, spare pumps and oil lines, etc., are abundantly provided in this installation.

Operating Results

The first runs of the Moscicki plant were made on a mixture of West Galician asphalt base crudes. This crude was selected for more than one reason: First of all, the low temperature distillation as stated in the beginning of this article aims principally at the production of high viscosity lubricating oils. The extraction of wax from the paraffin base crudes is an operation which did not fit very well in the general layout of the plant and besides, as most of the refinery men will agree, for a good recovery of the paraffin wax a partial cracking of the paraffin oil is positively advantageous. Moreover, the crude oil conditions in Poland and particularly those applying to the concern which operated this plant were such as to make desirable the use of this type of crude oil. It should be noted, however, that laboratory tests demonstrated clearly the possibility of using under certain conditions, the Moscicki system with equally good results for paraffin base oils. An average sample of the crude showed the following cuts:

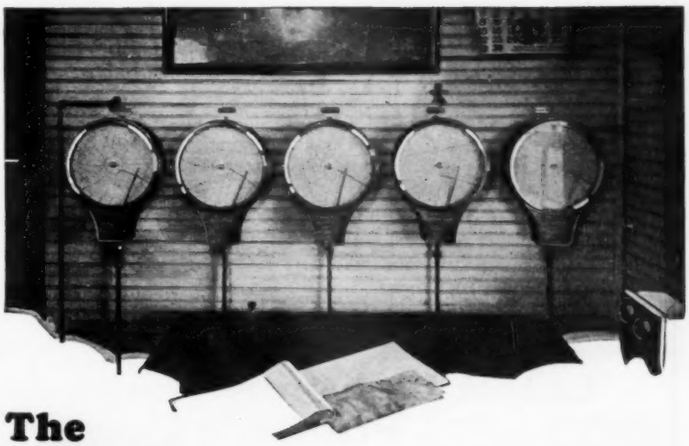
	Grav. A.P.I.	Per Cent
Crude oil	34.5	
Gasoline	56.2	27
Kerosene	40.0	26
Gas oil	34.0	7
Residuum	20.6	38
Loss	....	2

The figures given in Table I, which have been translated from the original plant records into American units, cover a period of operation of about two weeks.

Table I—Specification of the Straight Cuts From the Moscicki Plant

Condenser No.	Product	Gravity A.P.I.	I.B.P. °F.	E.P. °F.	Flash °F.	Viscosity Saybolt Univ.	Cold Test +°F.
1	Gasoline	61.3	145	284			..
2	Gasoline	57.7	169	356			..
3	Gasoline	54.2	185	365			..
4	Naphtha	49.7	211	446	...		..
5	Kerosene	41.7	262	554	70°		..
6	Gas oil	33.4	284	...	118	39 @ 68°F.	4
7	Gas oil	29.2	293	...	170	86 @ 68°F.	4
8	Lub. oil	24.8	...	...	irr	76 @ 122°F.)200/100°)	0
9	Lub. oil	21.4	...	...	irr	180 @ 122°F. (300/100°)	0
II Evaporator	Residuum	16.5					40

The three different cuts of gasoline obtained in the condensation one to three compare very favorably with similar fractions obtained from the same crude in the ordinary fire distillation still operation. The distillation ranges of the Moscicki products are considerably narrower than those of the fire distillation gasolines, the difference amounting to 26, 69 and 31 degrees Fahrenheit, respectively, as shown in the Tables II and III. The end points of the Moscicki gasolines are considerably below those of the ordinary gasoline cuts, (by 90, 54 and 54 degrees Fahrenheit, respectively) and this, notwithstanding their lower gravity. The fractionating by fractional condensation



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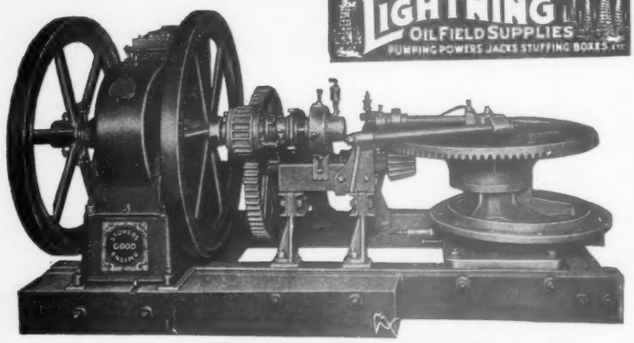

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Table II—Distillation Range of the Straight Gasoline Cuts From the Moscicki Plant

Gravity	I.B.P.	10 Pct.	20 Pct.	30 Pct.	40 Pct.	50 Pct.	60 Pct.	70 Pct.	80 Pct.	90 Pct.	E.P.°F.
61.3	145	163	171	175	180	185	192	198	215	231	284
57.7	169	189	198	207	212	217	226	239	257	288	356
54.2	185	216	223	230	235	243	257	271	288	314	365

Table III—Distillation Range of Straight Gasoline Cuts From the Ordinary Fire Distillation

Gravity	I.B.P.	10 Pct.	20 Pct.	30 Pct.	40 Pct.	50 Pct.	60 Pct.	70 Pct.	80 Pct.	90 Pct.	E.P.°F.
64.2	103	156	173	187	199	210	225	244	264	302	374
58.9	154	196	210	221	232	246	259	275	295	329	410
55.7	208	234	243	250	259	268	277	293	314	338	419

Cuts Obtained

There is nothing particular to remark about the product from the fourth condensation, except that the fractionating is not sufficient here to meet the commercial specifications for so-called "test gasoline" which is being used extensively in Europe as substitute for turpentine. However, it is very hard, if not impossible, to obtain a product which meets these requirements by a straight distillation cut, even from the best fire stills, equipped with very efficient dephlegmators. A subsequent rectification or at least redistillation is indispensable in either case.

The kerosene fraction is satisfactory as far as gravity and color is concerned but the flash point is too low. Here we see the effect of absorption of the lighter hydrocarbons by the kerosene fraction. The flash point is a very sharp and sensitive criterion for such absorption. Actually the amount of lighter hydrocarbons absorbed by the kerosene was small. A sample blown with air for one hour lost but 3 per cent of its weight though the flash point went up to 28 degrees Fahrenheit, reaching 100 degrees Fahrenheit (Abel test.)

The light and heavy gas oils from condensations six and seven, respectively, are equivalent to ordinary steam distillation cuts. By adjusting the temperature of these condensations a variation in gravity and in viscosity can be obtained varying with the crude oil being treated and the general market conditions. The products from condensations eight and nine are light and medium lubricating oils and meet the United States Government specifications for such oils. The flash points, however, were sometimes as low as 250 degrees Fahrenheit instead of the required 325 or 335 degrees Fahrenheit. This, of course, was anticipated and provision was made therefor by the use of a simple device called "apparatus for improving the flash point of oils." The hot products from condensations eight and nine (if necessary and required also those from condensations six and seven) are pumped to the top of tall towers filled with a suitable cheap filling material such as pebbles and superheated steam admitted in measured quantities near the bottom of the scrubber towers. The counter-current stream of steam strips the small amount of the light constituents from the oil. It was surprising how small were the quantities of lighter hydrocarbons removed and yet how rapidly the flash point rose in the course of this operation.

Residuum Oils

The residuum from evaporator II was the cause of much worry. It had been assumed that the residuum from this evaporator would be asphalt, having a melting point of not less than 115 degrees Fahrenheit, i.e., a marketable product for which a fair price would be obtained. However, it was not found possible to obtain during the period of operation a product of the above or even roughly similar specifications. As this tended to upset the balance sheet of the plant, numerous and various attempts were made to overcome this handicap, but it was not found possible to obtain satisfactory results. We will discuss this as well as the other difficulties at a later point.

Summarizing, we can say that the fractionating of crude oil by means of the Moscicki evaporation system proved to be at least equivalent to a fairly good topping plant. The gasoline cuts were remarkably good, the kerosene and gas oil fractions satisfactory and the lubricating oil distillates (after an inexpensive and automatic purification) at least as good as straight steam distillation cuts. Be

satisfactory heavy oils were not obtained and at the same time, the residuum offered an embarrassing problem.

Remedies Applied

The first and most logical remedy which was attempted consisted in various attempts to raise the temperature in evaporator II. As mentioned above this could be considered a priori as a more or less futile attempt, as the highest temperature in the superheater was strictly limited by the properties of the circulating hydrocarbon vapors. On the other hand, the actual temperature (350 to 360 degrees Centigrade) of the hydrocarbon vapors entering the evaporator II was found not to be high enough. It is true that the hydrocarbon vapors could easily have stood a rise of temperature of perhaps 30 or 40 degrees Centigrade, especially if by keeping the temperature of evaporator I low, their compositions were changed toward the lower end of the paraffin chain. Unfortunately, the construction of the superheater did not permit any substantial rise of temperature of the circulating vapors without disproportionately raising the temperature of the heating medium; in other words, the heating surface of the superheater was too small.

The plant was originally designed to treat about 1,400 bbls. of crude oil per 24 hours, and in fact it was possible to treat this amount as described above. Later on the daily throughput was reduced in the expectation that the same amount of heat applied to a smaller quantity of oil would give better results as far as the lubricating oils and asphalt were concerned. However, as evaporator II lacked a sufficiently high temperature rather than calories, the improvement in the plant performance was negligible.

The next change was to treat a topped crude instead of the original crude oil containing the lighter fractions. In order to insure a sufficient amount of low boiling hydrocarbons acting as the heat transferring medium, provision was made to fill the system with gasoline vapors. The results were somewhat better and heavier oil fractions were obtained, but the asphalt trouble remained as before.

These facts and also financial and personal considerations (which do not fall within the scope of this article) led finally to the abandonment of the plant. This was very regrettable, particularly from the technical point of view as well as for the further development of this ingenious distillation system.

Small Scale Experiments

Considerable experimental work in this particular field was done at that time by D. Wandycz and S. Suknarowski with

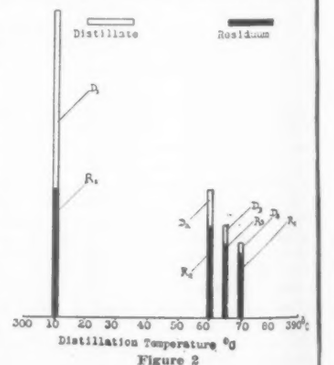

Figure 2

assistance of T. Chmura. They designed a small-scale apparatus which included the principal features of the Moscicki

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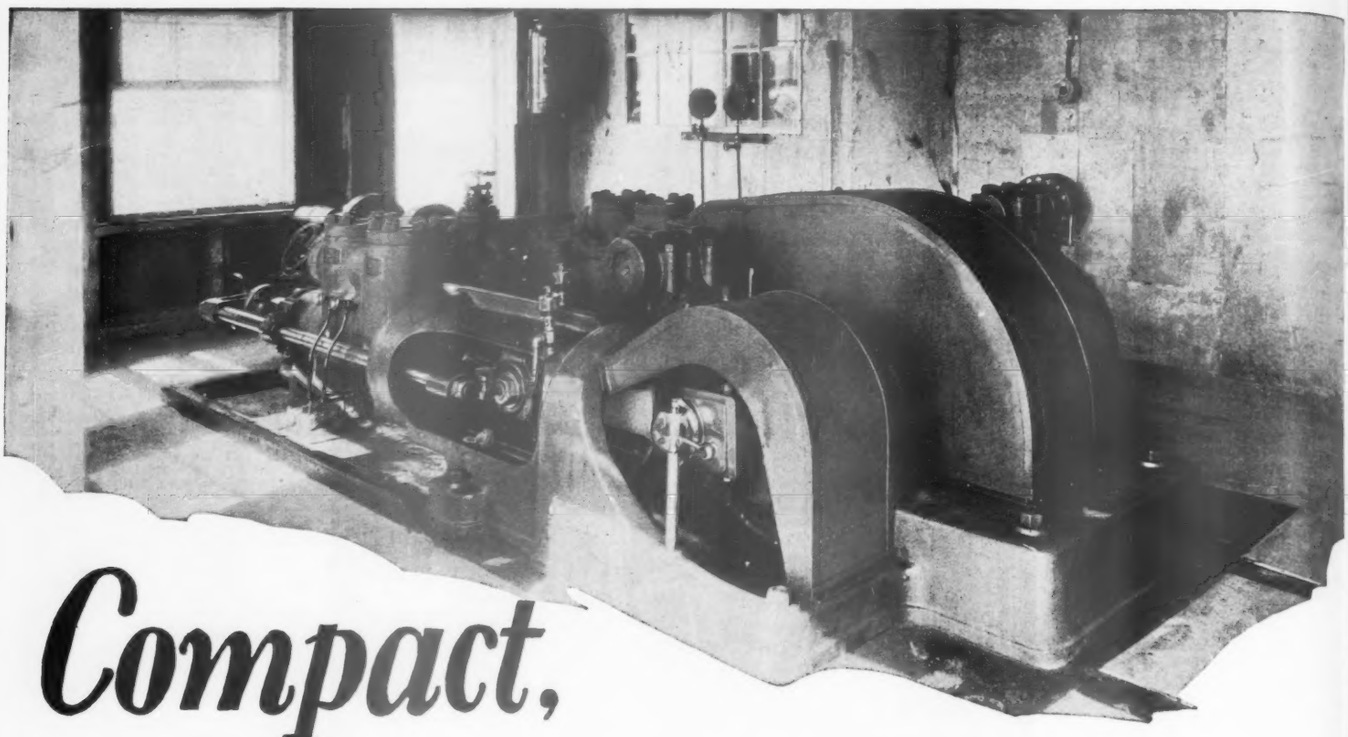

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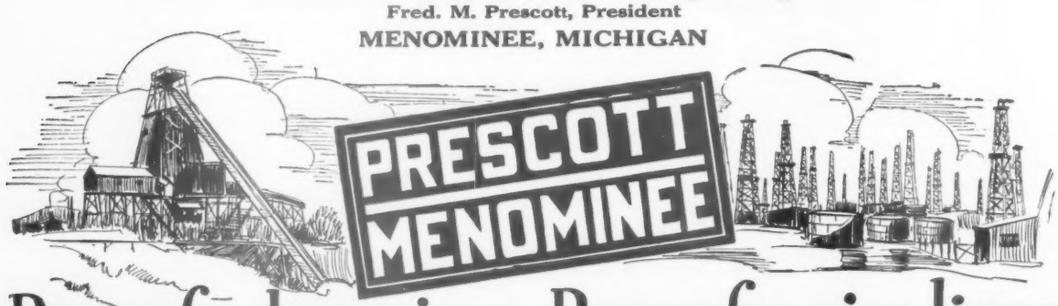

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plant, replacing, however, the fractional condensation by a single condensation of short cuts. Their results have been published in a little-known magazine and accordingly did not attract the proper attention of petroleum technologists.[7] In the following tables and diagrams we have tabulated and translated into American units some of their results.

In Figure 2 and Table 4 are given results of experiments conducted with a West Galician asphaltic base oil residuum. For clearer presentation a graphical method is used in Figures 3 and 4. The horizontal axis gives the evaporation

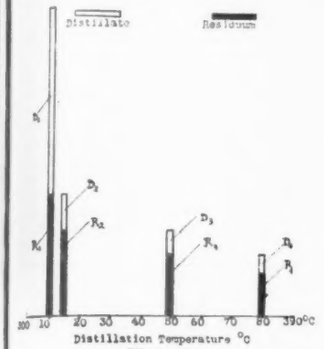

Figure 3

temperature. The first product (R_0) which is being distilled at 310 degrees Centigrade an overhead distillate D_1 and the residuum R_1 as bottom (Figure 3.) The relative amount of each is represented by the respective lengths of the ordinates, thus, for example, $R_1 : D_1 = 42.2$ per cent : 58.8 per cent. In the second operation R_1 is being evaporated at 360 degrees Centigrade and yields R_2 as bottom and D_2 as overhead distillate. Obviously $R_1 = D_2 + R_2$; $R_2 = D_3 + R_3$, etc., as shown in the diagram. The losses are negligible.

In the same way in Figure 3 and Table 5 are presented the results obtained by treating a paraffin base crude residuum. The meaning of the symbols is the same.

These results are remarkable. Not only lubricating oils of cylinder grade viscosity and flash point were obtained as overhead distillates, but also their chemical properties were not less surprising. The writer has compared samples of these oils with best high-vacuum distillates obtained from the same crude under the best operating conditions. The comparison was decidedly in favor of low temperature products. They were odorless and in thin layers completely transparent; the consumption of sulphuric acid for chemical treatment was also surprisingly small. The scope of this article does not allow us to enter into these details and we must refer the reader to the original article.

At a temperature of 370 degrees to 380 degrees Centigrade, a good grade of asphalt was obtained as the bottom product of the final evaporation, a result which was vainly sought in the industrial plant at 350 degrees Centigrade. It should be noted, however, that in the small scale apparatus the amount of the heat transferring vapor was relatively higher per unit of oil treated than in the original plant.

REFERENCES

[1]The equilibrium is reached after a certain time, which depends chiefly upon the rate of diffusion of oil vapors into the steam bubble. In the ordinary distillation processes an equilibrium is never reached and the actual steam consumption therefore much higher than calculated.

[2]No reliable data are available concerning the value of L for higher hydrocarbons. The used figure for hexadecane L=12,000 calories is estimated. See W. A. Hamor-A. F. W. Padgett: Examination of Petroleum (1920), page 325.

[3]Same objections as to [1].

[4]The Moscicki plant was built in the refinery of the Dabrowa Oil Corp. at the Jedlicze, Western Galicia, Poland.

[5]This device was designed by M. Kaluzynski, chief mechanical engineer of the plant.

[6]The lack of reliable data concerning the specific heat of hydrocarbon vapors at high temperatures was one of the sources of error in calculating the superheater surface.

[7]See: Przemysl Chemiczny (1924) No. 10-12 (Lwow).

TABLE IV—Distillation of the Residuum From Potok Crude (R) West Galician

Gravity		Viscosity		Flash Point		
Spec.	A.P.I.	°Engler	Saybolt	°C.	°F.	Remarks
R_0 0.929	20.8	5.4/ 50°C.	202/122°F.	131	268	
D_1 0.912	23.6	4.1/ 50°C.	154/122°F.	196	285	
R_1 0.971	14.2					
D_2 0.946	18.1	2.8/100°C.	100/212°F.	253	487	
R_2						Soft Asphalt
D_3 0.953	17.0	3.8/100°C.	140/212°F.	286	547	
R_3						Asphalt
D_4 0.955	16.7	6.5/100°C.	244/212°F.	305	581	
R_4						Asphalt + 44° (K. S.)
						Asphalt + 44° (K. S.)

Table V—Distillation of the Residuum From Bitkow Crude (R) East Galician

Gravity		Viscosity		Flash Point		C. T.	
Spec.	A.P.I.	Engler	Saybolt	°C.	°F.	+°C.	+°F.
R_0 0.895	26.5	3.2/ 50°	115/122°F.	176	349	25'5	78
D_1 0.873	30.6	1.75/50°	57/122°F.	158	316	26	79
R_1 0.947	17.9	4.85/100°	182/212°F.	237	459	36	97
D_2 0.905	24.8	4.2/ 50°	156/212°F.	233	451	38	100
R_2 0.966	15.0	13.9/100°	500/212°F.	267	512	40	104
D_3 0.928	21.0	2.0/100°	68/212°F.	246	475	43	109
R_3 0.990	11.4			290	554	37	99
D_4 0.942	18.4	4.5/100°	170/212°F.	281	538	48	118
R_4						Asphalt + 48°C. (K. S.)	

CARSON PRESIDENT ATLAS PETROLEUM CO.

John M. Carson, whose resignation as sales manager in charge of the Chicago office of the Mid-Continent Petroleum Corp. was announced ten days ago, will become president and general manager of the Atlas Petroleum Co. effective April 1. Announcement to that effect was made by Mr. Carson last week in Tulsa.

Mr. Carson has purchased a large interest in the Atlas Petroleum Co. which is a marketing concern organized by the Taxman interests following the sale of the Taxman Refining Co. to the Mid-Continent Petroleum Corp. (formerly Cosden & Co.), two years ago. L. A. Stewart, who also is widely known in refining and marketing circles, will join Mr. Carson in the reorganization of the company. Mr. Stewart was formerly sales manager of the Southern Oil Corp. and has just resigned as general manager of the Refiners Petroleum Corp.

J. J. Taxman will continue to be associated with the company but not in active capacity. Frank Schindler, who has been associated with Mr. Carson at the Chicago office of the Mid-Continent Petroleum Corp., will be secretary of the Atlas corporation and Phil H. Taxman, treasurer. The main offices of the company will be at 624 Michigan Boulevard, Chicago. E. E. Roper, who has been sales manager of the Miller Petroleum Co. for several years will have charge of the Kansas City office.

"Our new company will be a petroleum service organization with a personnel knowing the problems of the jobbers and distributors as well as those of the refiners," Mr. Carson said in a statement relative to his new organization. "We are in a position to sell service to both ends of the industry." While in Tulsa Mr. Carson predicted that gasoline tank car prices in the Mid-Continent area were as low as they would go.

COLOMBIA EXPORTS

The exportation of crude petroleum from Cartagena during January, came to 907,772 bbls. net, valued at $1,770,156, an advance of about 40,000 bbls. and $80,000 over the December shipments and probably the largest monthly exportation since the first shipment in July, 1926. Of the January exports, 775,391 bbls. went to the United States and 132,381 bbls. to England.

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NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

McMan Oil & Gas Co.'s No. 7 E. F. Bryan, 330 feet south and west of NE cor. SE SW, Section 107, Block 4, I. & G. N. Survey; No. 8, 330 feet north and 255 feet east of SW cor. of west 30 acres of N half of NW, Section 92, Block 4 same survey.

Gray County

Prairie Oil & Gas Co.'s No. 1 H. H. Merten, 330 feet north and east of SW cor. SE, Section 105, Block 3, I. & G. N. Survey.

Hutchinson County

Antelope Creek Oil Co.'s No. 2 J. M. Sanford, 330 feet south and east of NW cor. of south 160 acres of Section 82, Block 46, H. & T. C. Survey. J. J. Gordan and others' No. 1 J. M. Sanford, 330 feet north and east of SW cor. of west 40 acres of south 320 acres of Section 83, Block 46, same survey. Great Plains Oil Co.'s No. 1 Lee Bivins, 330 feet north and east of SW cor. of Section 13, Block Y-2, T. R. R. R. Survey. McMan Oil & Gas Co.'s No. 1 J. M. Sanford, 330 feet north and west of SE cor. of north 275 acres of Section 83, Block 46, H. & T. C. Survey. Noble Brothers' No. 1 J. M. Sanford, 300 feet north and 330 feet west of SE cor. of north 46 acres of south 366 acres of the same section. Phillips Petroleum Co.'s No. 2 W. L. Kingsland-Gibson, 330 feet north and east of SW cor. NW NW, Section 4, Block Y; No. 15 J. J. Perkins-Martin, 990 feet north and east of SW cor. of Section 1, Block X02, H. & O. B. Survey; No. 16, 990 feet north and 1,635 feet east of SW cor. of the same section; No. 1 J. M. Sanford-Mudget, 330 feet north and east of SW cor. of north 160 acres of Section 85, Block 46, H. & T. C. Survey; No. 8 J. A. Whittenberg-Tinnie, 1,638 feet north and 330 feet west of SE cor. of Section 71, Block 46, same survey. Prairie Oil & Gas Co. and others' No. 3 Diana Shaw, 1,167 feet south and 165 feet west of NE cor. of Section 27, Block Y; No. 67 Johnson Brothers-A, 150 feet north and 210 feet east of SW cor. of east 40 acres of west 60 acres of the N half of NW, Section 22, Block Y. Pure Oil Co.'s No. 5 Johnson Brothers-B, 1,040 feet north and 320 feet east of SW cor. of north 160 acres of south 320 acres of Section 70, Block 46, H. & T. C. Survey. Skelly Oil Co.'s No. 1 J. M. Sanford, 320 feet south and 345 feet east of NW cor. of north 40 acres of east 80 acres of north 160 acres of south 320 acres of Section 82, Block 46, same survey. Spur-Mack Drilling Co.'s No. 1 J. F. Weatherly, 330 feet south and 990 feet east of NW cor. NE, Section 24, Block Y. J. D. Ward's No. 2 W. L. Kingsland, 330 feet south and east of NW cor. of east 60 acres of north 240 acres of Section 6, Block Y. W. R. White and others' No. 1 E. Cockrell, 330 feet north and 235 feet east of SW cor. of west 20 acres of east 40 acres of the S half of Section 2, Block B-3, D. & S. E. Survey. Geo. Williams and others' No. J. M. Sanford, 605 feet south and 330 feet east of NW cor. of north 80 acres of south 320 acres of Section 80, Block 46, H. & T. C. Survey.

Wheeler County

Fain and others' No. 2 Binkley & Cain, C NE SW, Section 55, Block 24, H. & G. N. Survey. Gibson Oil Corp.'s No. 4 W. E. Bentley, 330 feet north and 990 feet west of SE cor. of NW, Section 42, Block 24, H. & G. N. Survey.

NORTH CENTRAL & WEST TEXAS

Archer County

American Refining Co. and others' No. 13 J. H. Turbeville, 185 feet north and 150 feet east of SW cor. of E half of R. Carson Survey, No. 150. Consolidated Oil Co. & C. P. Burton's No. 1 S. G. Helm, 150 feet south and 2,090 feet west of NE cor. William Mayor Survey, A-273. Maer & Staniforth's No. 1 L. F. Wilson, 440 feet north and 150 feet east of SE cor. Section 2, S. P. R. R. Survey, A-1,221 and located in D. L. & C. Survey, A-1,069. Petroleum Production Co.'s No. 1 L. F. Wilson, 1,400 feet north and 775 feet west of SE cor. of Section 111, A. T. N. C. Survey. Plains Production Co.'s No. 3 Belle & Lyles, 450 feet north and 150 feet west of SE cor. of Section 2, S. P. R. R. Survey, A-1,231. Simms Oil Co.'s No. 19 J. H. Turbeville-A, 750 feet north and 450 feet west of SE cor. of west 20 acres of south 255 acres of R. Carson Survey, No. 172. Simms Oil Co. & L. T. Burns' No. 9 J. H. Turbeville-A, 150 feet south and 1,050 feet east of NW cor. of their 80 acre lease "A" out of R. Carson Survey, No. 142. United Producers & Petroleum Production Co.'s No. 1 J. H. Turbeville-A, 150 feet north and west of SE cor. of west 40 acres of east 112 acres of south 152 acres of Section 124, Club Ranch Subdivision. W. J. Grisham and others' No. 1 F. W. Kunkel, 150 feet north and west of SE cor. of east 51 acres of west 91 acres of J. A. Self Survey, A-914.

Brown County

Amerada Petroleum Corp.'s No. 25 J. H. Fry, 370 feet north and 340 feet west of SE cor. of their 75-acre lease out of George Stubblefield Survey, No. 622. Barbara Oil Co.'s No. 7 A. E. Metts, 200 feet south and 1,000 feet east of NW cor. of east 38 acres of A. E. Metts' 63 acre tract out of W. A. Marr Survey; No. 8, 200 feet south and 1,365 feet east of NW cor. of east 38 acres of A. E. Metts same 63-acre tract; No. 4 Mrs. J. Willis, 200 feet north and 950 feet east of SW cor. of Mrs. J. A. Willis' 160-acre tract out of the N half of Section 2, A. A. & M. G. Survey, A-1,369; No. 5, 200 feet north and 1,550 feet east of SW cor. of Mrs. J. A. Willis' same 160-acre tract. Curry & Moore's No. 3 Kilgore Brothers, 150 feet south and east of NW cor. of their 60-acre lease out of H. McClure Survey, No. 152. J. K. Hughes' No. J. W. Shore, 150 feet south and east of NW cor. of J. W. Shore's 320-acre tract out of J. C. Ryan Survey, No. 633; No. 2, 450 feet south and 150 feet east of NW cor. of J. W. Shore's same 320-acre tract; No. 3, 750 feet south and 150 feet east of J. W. Shore's same 320-acre tract. Humble Oil & Refining Co.'s No. 9 A. W. Armstrong, 450 feet north and 1,200 feet west of SE cor. of Section 1, Juan Delgado Survey, No. 785; No. 4 J. H. Fry, 150 feet north and 615 feet west of the SE cor. of their 25-acre lease out of George Stubblefield Survey, No. 622; No. 5, 150 feet north and 1,027 feet west of SE cor. of their same 25-acre lease; No. 12 D. C. Wooldridge, 470 feet south and 150 feet east of NW cor. of their 70-acre lease out of E. T. R. R. Survey, No. 157. Magnolia Petroleum Co.'s No. 3 A. E. Metts, 150 feet north and 450 feet west of SE cor. of south 67 acres of A. E. Metts 95-acre tract out of the W half of Section 1, S. A. & M. G. Survey, A-2,011. Midwest Exploration Co.'s No. 20 Mrs. M. J. Suttles, 3,090 feet south and 1,365 feet east of NW cor. of M. J. Suttles' 96-acre tract out of R. Mitchell Survey, No. 140. Senior Petroleum Co.'s No. 1 Williams heirs, 400 feet south and east of NW cor. of Section 4, E. T. R. R. Survey. C. H. Shoup Jr.'s No. 6 J. Byler, 1,445 feet north and 1,586 feet east of SW cor. of T. & N. O. Survey, No. 43. Sinclair Oil & Gas Co.'s No. 22 J. H. Fry, 1,045 feet south and 595 feet east of NW cor. of their 75-acre lease out of George Stubblefield Survey, No. 622; No. 23, 620 feet south and 595 feet east of NW cor. of their same 75-acre lease. The Texas Company's No. 34 Mrs. R. M. Lowe, 1,215 feet south and 1,305 feet east of NW cor. of their 320-acre lease out of the same survey; No. 35, 150 feet north and east of SW cor. of their 320 acre lease out of the same survey. Tidal Oil Co.'s No. 1 E. W. Arledge, 150 feet north and west of SE cor. of E. W. Arledge's 265-acre tract out

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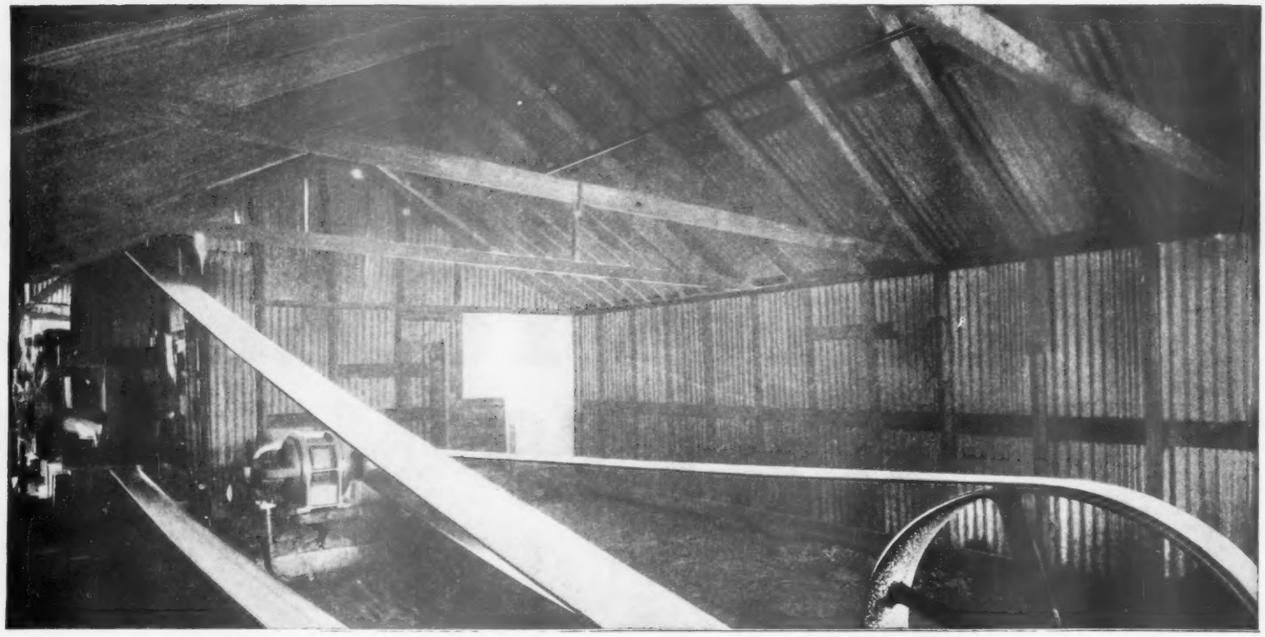

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of Mrs. N. B. Mitchell Survey, No. 150; No. 2, 550 feet north and 150 feet west of SE cor. of E. W. Arledge same 265-acre tract; No. 8 J. T. Hodnett, 150 feet south and 1,350 feet east of NW cor. of their 60-acre lease out of J. M. Harris Survey, No. 784. Wentz Oil Corp.'s No. 8 J. M. Shore, 1,950 feet south and 775 feet east of NW cor. of J. M. Shore's 320-acre tract out of Charles S. Betts Survey, No. 625.

Callahan County

Canary and others' No. 1 J. T. Evans, 660 feet south and west of NE cor. of NE SE, Section 28, Blind Asylum Land. Deep Rock Oil Co.'s No. 1 L. J. Gorsuch, 150 feet south and west of NE cor. SW, Section 88, Block 13, T. & P. Survey. Warren-Hays Oil Co.'s No. 1 J. E. Green, 150 feet south and 1,100 feet east of NW cor. SW, Section 27, Deaf & Dumb Asylum Land.

Coleman County

Senior Petroleum Co.'s No. 1 J. S. Laughlin, 150 feet south and east of SE cor. of A. S. Lipscomb Survey, No. 80, and located in Stewart Petty Survey, No. 194.

Cooke County

American Refining Co.'s No. 10 J. A. Dennis, 1,650 feet north and 150 feet west of SE cor. of their 80-acre lease out of T. J. Moss Survey, A-736. Camp-Heydrick and Oil Operators Trust Co.'s No. 4 M. J. Kleiss, 450 feet south and 1,750 feet west of NE cor. of J. W. Littleton Survey, A-586, being 450 feet south and 150 feet west of NE cor. of their 28-acre lease. J. B. Chronic and others' No. 1 J. M. Kelly, 825 feet north and west of NE cor. of I. N. Wallen Survey, and located in M. E. P. & P. Survey, A-991. J. K. Hughes Development Co.'s No. 4 J. C. Embrey, 1,050 feet north and 150 feet west of SE cor. of their 80-acre lease out of T. J. Moss Survey, A-736; No. 5, 1,350 feet north and 150 feet west of SE cor. of their same 80-acre lease; No. 6, 150 feet north and 450 feet west of SE cor. of the same 80-acre lease. Kewanee Oil & Gas Co.'s No. 20 J. A. Dennis, 1,650 feet north and 150 feet east of SW of their 160-acre lease out of the same survey. Lynch, Stahl & Burris' No. 1 Walling & Marty, 350 feet north and 4,350 feet west of SE cor. of Jonathan Clark Survey, A-194 being 150 feet south and east of NW cor. of Walling & Marty's 51-acre tract. Magnolia Petroleum Co.'s No. 1 Mrs. C. E. Stacy, 3,750 feet north and 4,400 feet west of SE cor. of J. Clark Survey, A-194, being 150 feet north and east of SW cor. of Mrs. C. E. Stacy's 20-acre tract. Oil Operators Trust Co.'s No. 1 M. J. Kleiss, 150 feet south and 1,450 feet west of NE cor. of J. W. Littleton Survey, A-586, being 150 feet south and east of NW cor. of Block 60, town of Muenster; No. 2, 150 feet south and 1,150 feet west NE cor. J. W. Littleton Survey, A-586, being 150 feet south and 450 feet east of NW cor. Block 60, same town. Petroleum Investment Co.'s No. 1 Hire & Seagroves, 5,445 feet north and 4,038 feet east of SW cor. of H. Nail Survey, A-790. Stroube's & Stroube's No. 1 John Koelser-B, 150 feet north and 2,400 feet west of NE cor. of J. W. Littleton Survey, A-586 and located in Thomas Scott Survey, A-900, being 150 feet north and west of SE cor. of their 10-acre least "B."

Crane County

Church and others' No. 2 University Laand, 330 feet north and 2,310 feet east of SW cor. of Section 34, Block 30, University Land. Humble Oil & Refining Co.'s No. 8 University Land, 330 feet south and west of NE cor. SW, Section 38, Block 30, same land. The Texas Company's No. 1 University Land, 330 feet south and west of NE cor. of the W half of Section 46, Block 30, same land.

Crockett County

P. H. Williams' No. 1 L. P. Powell, 330 feet south and west of NE cor. of Section 53, Block BB, G. C. & S. F. Survey.

Eastland County

Arkansas Fuel Oil Co.'s No. 10 C. U. Connellee, 575 feet north and 330 feet west of SE cor. of west 500 acres of Nancy Ussury Survey. Texas Pacific Coal & Oil Co.'s No. 2 C. M. McCall, 330 feet south and east of NW cor. of the S half SE, Section 46, Lavaco County School Land. Transcontinental Oil Co.'s No. 1 R. F. Weddington, 990 feet south and 330 feet west of NE cor. NE, Section 2,054, T. E. & L. Survey.

Ector County

J. S. Cosden and others' No. 2 G. W. Connell-A, 330 feet south and 2,310 feet west of NE cor. of Section 13, Block B-16, Public School Land; No. 3, 330 feet north and west of SE cor. NE of the same section.

Fannin County

Honey Grove Oil & Gas Co.'s No. 1 W. A. Broadfoot, 150 feet north and east of the most westerly SW cor. of N. A. Broadfoot Survey, Section 6, T. & P. Survey.

Fisher County

Marland Oil Co. & Texon Oil & Land Co.'s No. 1 J. S. McCall, 1,320 feet south and west of NE cor. of Section 108, Block 3, H. & T. C. Survey.

Glasscock County

Green and others' No. 1 F. G. Oxaheer, C SE, Section 6, Block 34, Tp-2-S, T. & P. Survey.

Jones County

Gault-Brown and others' No. 1 Mrs. A Zips, C NE NW, Section 24, Block 14, T. & P. Survey.

Kent County

Douglas Oil Co.'s No. 1 Scoggins, C NW, Section 57, Block 7, H. & G. N. Survey.

Knox County

Deep Rock Oil Co.'s No. 1 Lee Coffman, 1,270 feet south and 2,590 feet west of NE cor. of Section 31, Block 4, D. & W. R. R. Survey.

Mitchell County

Paul Teas' No. 1 E. T. Strain, 990 feet south and 330 feet west of NE cor. of Section 82, Block 97, H. & T. C. Survey. Robert Thravis' No. 1 C. Way, 330 feet south and west of NE cor. SE NW, Section 91, Block 27, T. & P. Survey.

Montague County

Cato Oil Co.'s No. 2 N. J. Howard and others, 4,000 feet south and 1,800 feet west of NE cor. of J. Chambliss Survey, A-123, being 75 feet south and 550 feet east of the most easterly NW cor. of their 9-acre lease. Bridwell & Heydrick's No. 1 Lee Grenshaw, 5,400 feet north and 1,800 feet west of SE cor. of W. Wallace Survey, A-834.

Throckmorton County

Reiter-Foster Oil Corp.'s No. 3 M. K. Graham, 690 feet north and 200 feet west of SE cor. of the N half of Section 985, T. E. & L. Survey No. 4, 200 feet north and 600 feet west of SE cor. of the N half of the same section.

Upton County

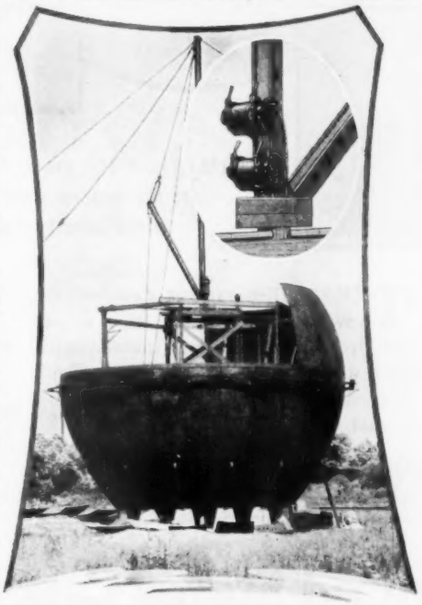
Amerada Petroleum Corp.'s No. 6 E. S. Hughes, 3,600 feet south and 250 feet east of NW cor. of their 80-acre lease out of William Teer Survey, No. 4, A-806. Humble Oil & Refining Co.'s No. 4 R. Ricker, 2,970 feet southeast of northwest line and 330 feet southwest of northeast line of M. S. Denton Survey, No. 5, A-127.

Wichita County

E. P. Cullum Drilling Co.'s No. 1 J. A. Kemp, 920 feet south and 150 feet west of NE cor. Section 6, League 2, Denton County School Land. British American Oil Production Co. and others' No. 2 Kemp & Kempner, 450 feet north and 150 feet west of SE cor. of west 60 acres of east 80 acres of north 100 acres of Block 49, Kemp's Wichita Valley Lands. R. R. Clark and others' No. 2 A. A. Honaker, 450 feet south and 150 feet west of NE cor. of Lot 17, Section 11, A. B. & M. Survey, A-339. C. H. Gilchrist's No. 1 W. W. Overbey, 150 feet north and west of SE cor. of east 34 acres of north 74 acres of south 130 acres of W. W. Overbey's 195-acre tract out of J. M. Sharp Survey, A-262; No. 2, 150 feet north and east of SW cor. of east 34 acres of north 74 acres of south 130 acres of W. W. Overbey's same tract. John O'Neil's No. 2 C. A. Allingham, 1,560 feet south and 1,400 feet east of NW cor. of Section 32, Block 5, H. & T. C. Survey. Simms Oil Co.'s No. 2 J. L. & T. J. Waggoner, 150 feet north

Erecting "Horton-Spheres" With Turbinair Hoists

Here's the little 345-lb. Sullivan Turbinair hoist doing another big erection job for the Chicago Bridge and Iron Company. Some of the curved steel plates of which the "Horton-Sphere" is made are 8x18 ft. in size and weigh 2835 lbs., but the Turbinair hoist handles them easily.



Two Turbinair hoists are mounted side by side on a stiff leg derrick, one handling the load and the other the boom. Both hoists can be operated at the same time which speeds up the work greatly.

The Graver Corporation, Warren City Tank and Boiler Co., Western Gas Construction Co., and many other organizations are speeding up erection jobs with Turbinair hoists. Are YOU familiar with the lightness, compactness, great power, and speed of these little machines?

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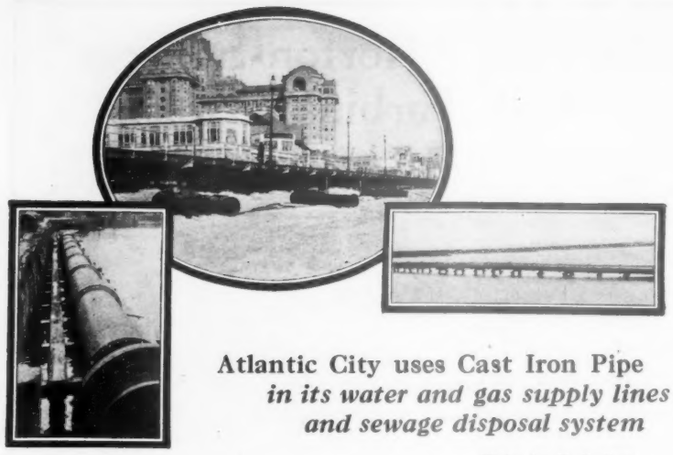

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and 520 feet west of SE cor. of the N half of Lot 12, Hezekiah George Survey, A-454. The Texas Company's No. 322 W. T. Waggoner, 1,445 feet north and 340 feet east of SW cor., Section 13, H. T. & B. Survey, A-137; No. 323, 2,095 feet north and 340 feet east of SW cor. of the same section.

Wilbarger County

Consolidated Oil Co. & J. S. Cosden, 1 W. T. Waggoner, 600 feet south and 150 feet west of NE cor. NE NW, Section 57, Block 4, H. & T. C. Survey. Fain-McCaha Oil Corp. and others' No. 7 F. Fluhman, 475 feet south and 160 feet east of NW cor. NE, F. Fluhman's 160-acre tract and located in W. A. McKinney Survey; No. 8, 450 feet south and 150 feet west of NE cor. of their 40-acre lease out of F. Fluhman's same 160-acre tract; No. 5 W. T. Waggoner-E, 150 feet south and 1,050 feet east of NW cor. of the E half NE, Section 51, Block 4, H. & T. C. Survey. Prairie Oil & Gas Co.'s No. 7 W. T. Waggoner-A, 220 feet north and 660 feet east of SW cor. NW SE, Section 45, Block 4, H. & T. C. Survey.

Young County

C. W. Boller and others' No. 2 L. F. Gregg, 450 feet south and 150 feet east of NW cor. of south 45 acres of north 90 acres of west 175 acres of A. Rohus Survey, A-240. Continental Oil Co. & Francis' No. 5 S. M. J. Benson, 450 feet south and 150 feet east of NW cor. of east 35 acres of west 65 acres of the S half of Section 1,450, T. E. & L. Survey

W. R. STEWART DIES, PIONEER IN INDUSTRY

CHICAGO, Mar. 26.—W. R. Stewart, one of the pioneers in the oil industry, died at the County Hospital as the result of a cerebral hemorrhage which he suffered two weeks ago. Had he lived until October 29, Mr. Stewart would have been 74 years of age. He had no immediate family but is survived by several brothers.

Mr. Stewart was born in Iowa and entered the oil business as an employe of the old firm of Schofield, Sherman & Teagle. His former associates state that he built the first western bulk plant at Des Moines, Iowa, and operated the first tank car line in that state. In 1888 he sold out his business to the Standard Oil Co., and entered its employ on a contract for five years in the sales department.

Subsequently he founded the Stewart-Union Oil Co., later the Union Petroleum Co. and the Stewart Petroleum Co., being one of the very first to enter the marketing business. During the intervals between his work in the oil industry, he was active in financial matters in Wall Street, where he founded the broad ticker and the leaf service covering dealings in the stock exchange.

OIL AND GAS LEASES ISSUED BY DEPARTMENT

WASHINGTON, D. C., Mar. 26.—The Department of the Interior announces that an oil and gas lease has been delivered to the Consumers Gas Co., Inc., Monroe, La., for the S half SW Section 10-19n-5e, L. M., Ouachita Parish, Louisiana, at the regular royalty sliding scale of 12½ to 33⅓ per cent. The Consumers Gas Co. acquired this lease by assignment from David W. Williams, the homesteader, to whom patent issued with a reservation of the oil and gas to the United States. No well has been drilled, the lease having issued under the departmental decision of Matt Mechaley (51 L. D., 413). The land lies within the Monroe gas field.

Leases have been issued to the Lacardo Oil Co. for 160 acres in New Mexico at the 5 per cent royalty rate and 480 acres at the regular royalty sliding scale. The Lacardo Oil Co. acquired its interest in the land through an assignment from the Empire Gas & Fuel Co.

The discovery well is located on the SE SW Section 35-17s-17e, N. M. P., and was drilled to a depth of 1,630 feet with a discovery of 35 bbls. of 34.5 degrees gravity oil per day on July 11, 1926. The discovery well is on land included in the leases issued to the Empire Gas & Fuel Co.

An oil and gas lease has been delivered to the Union Oil Co. of California for the N half NE Section 10-11n-23w, S. B. M., Kern County, California, at the royalty rate of 5 per cent. The discovery well was drilled on the NW NE said Section 10 to a depth of 5,332 feet with a discovery of over 100 bbls. of 29 to 29.2 degrees of gravity oil per day, producing 130 bbls. on October 30, 1926.

Oil and gas leases have been delivered to the Empire Gas & Fuel Co. for land in Eddy County, New Mexico. Of this land 480 acres were leased at the regular sliding scale of 12½ to 33⅓ per cent.

PRESIDENT W. L. MELLON ON GULF'S OPERATIONS

Production of Gulf Oil Corp. in 1926 from more than 5,000 wells in Kansas, Oklahoma, Texas, Arkansas and Louisiana was the largest in the company's history, W. L. Mellon, president, states in his annual report to stockholders. The company also has a substantial production in Venezuela and Mexico. After deducting all royalties and working interests, the company's net production was over 44,000,000 bbls. of crude oil.

"Net earnings reported for the year 1926 of $35,098,077 were after deducting all drilling costs, amortization of undeveloped lease costs, depletion of producing properties, depreciation of plant and equipment, bad debts, state and Federal taxes paid or accrued and all interest charges," he continues.

"During the year Gulf Oil Corp. and its operating companies made substantial additions to their investments, properties plant and equipment costing approximately $70,000,000," President Mellon states. "A very large portion of this investment was expended for leaseholds and producing properties in the United States, particularly in Oklahoma and Texas, and extensive undeveloped acreage in Venezuela and Colombia, South America. Such investments are controlled largely by opportunities when offered, rather than by set policy," he added. "Substantial investments were also made in pipe line and storage facilities, additional and improved refinery facilites and for tanker fleet. Heavy investments were also made in bulk and retail distributing stations, including investment of about $5,000,000 in stock of marketing companies in Europe, thus enabling the company to better market its products.

"The outlook for the business during 1927 seems favorable at present. The volume of sales up to this time shows an increase, but with unusually keen competition and a tendency to lower gasoline prices, which is not unusual at this season.

On account of the growth of the business, the management is continuing the policy of retaining surplus earnings for reinvestment," he continued.

WILLIAM LINDSAY DEAD

CHATHAM, Ontario, Mar. 26.—Word has been received of the death at Oakland, Calif., of William Lindsay, formerly prominent in the Canadian oil industry. Mr. Lindsay, who was 87 years of age, conducted a refinery in Petrolia in the early sixties at the time of the great boom. About 35 years ago he went to Brisbane, Australia, with the International Deep Well Co., of which he later became president and managing director.

OIL WITHDRAWAL ELIMINATED

The classification of public lands made by the Geological Survey during February has been summarized in a statement just issued by the Secretary of the Interior. More than 500,000 acres in Utah previously included in oil withdrawal were defined as within the known geologic structure of producing oil and gas fields under the act of February 25, 1920.

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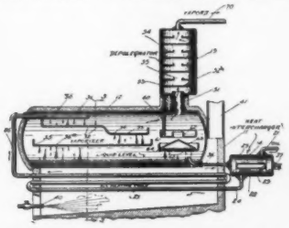
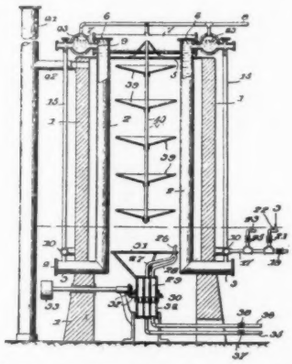
RECENT PATENTS

1,616,840. Distilling and Refluxing Unit. Harry H. Armstrong, Los Angeles, Calif. Filed December 26, 1923. Serial No. 682,756. 4 claims. (Cl. 196—99.)



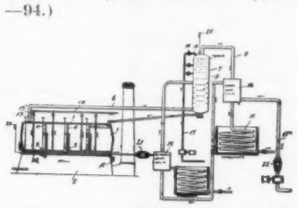
1. In combination: a furnace; a still having an anterior portion and a posterior portion supported in said furnace; a pipe coil having an inlet and an outlet end supported in said furnace below said still; means for causing a combustion in said furnace; means for delivering oil to the inlet end of said pipe coil; means for delivering fluid from the outlet end of said pipe coil to said still; means in the anterior upper portion of said still for thinly spreading and finely dividing the fluid so delivered thereto; a dephlegmator directly connected to the posterior upper portion of said still; means for returning any condensate from said dephlegmator to the posterior portion of said still; means in said still for finely dividing the condensates so returned, means for withdrawing vapors from the top of said dephlegmator; and means for withdrawing residuum from the lower posterior of said still.

1,616,521. Method of Cracking Oil. Frank E. Wellman, Kansas City, Kans. Original application filed March 20, 1923. Serial No. 626,386. Divided and this application filed May 7, 1923. Serial No. 637,255. 8 claims. (Cl. 196—47.)



8. The method of cracking oils which consists in causing the oil to circulate by convection upwardly through a heated zone, into a second relatively cool zone.

1,615,991. Method of Petroleum Distillation. William D. Mason, Richmond, Calif., assignor, by mesne assignments, to Standard Oil Co. of California, San Francisco, Calif., a corporation of Delaware. Filed December 11, 1922. Serial No. 606,134. 4 claims. (Cl. 196—94.)



4. A process of continuously distilling petroleum oil, which comprises continuously vaporizing oil in a still, continuously passing the vapors to a tower from which all the recondensed oils are returned to said still, therein subjecting

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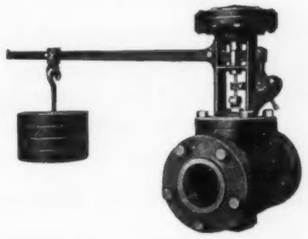

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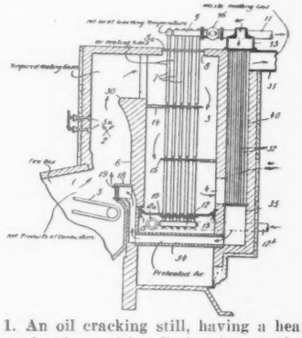
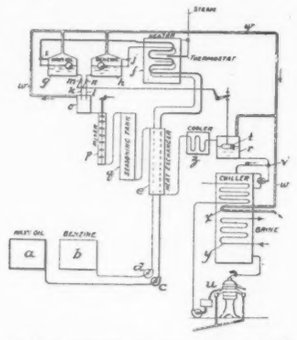
the vapors to the condensing action of the feed oil in the system, then introducing into the vapors water in such proportions that all of the water is converted into steam and passes off with the vapors escaping from such tower, and condensing such resulting vapors.

1,617,297. Pressure Still Heating Furnace. John E. Bell, Brooklyn, N. Y., assignor to Sinclair Refining Co., Chicago, Ill., a corporation of Maine. Continuation of application Serial No. 532,482. Filed January 28, 1922. This application filed April 1, 1924. Serial No. 703,340. 9 claims. (Cl. 196—116.)



1. An oil cracking still, having a heating chamber with oil heating surface therein, a fire box communicating with said chamber, means for preheating air with the hot gases leaving the heating chamber, and means for tempering the hot products of combustion from the fire box with the preheated air before the admixed air and combustion gases enter the heating chamber.

1,616,041. Process and Apparatus for Removing Wax From Oil. Selden H. Hall, Poughkeepsie, N. Y., assignor to The De Laval Separator Co., New York, N. Y., a corporation of New Jersey. Filed February 20, 1923. Serial No. 620,189. 8 claims. (Cl. 196—19.)



1. The process of removing wax from waxy mineral oil which comprises flowing separate streams of waxy oil and a diluent from sources of supply into two separate bodies of said oil and diluent and heating them en route, feeding both materials at a regulated rate from said separated bodies and mixing and blending them, flowing the heated solution in heat exchange relation with said separate streams flowing toward said separate bodies before heating the materials of said streams as aforesaid, whereby the materials in the separate streams are preheated and the flowing solution is precooled, chilling the solution, and separating the wax from the oil.

1,617,619. Apparatus for Cracking Oil. Gustav Egloff and Harry P. Benner, Chicago, Ill., assignors to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed August 21, 1920. Serial No. 405,100. Renewed June 9, 1926. 3 claims. (Cl. 196—99.)

2. An apparatus for treating oil, comprising a tube still through which oil is adapted to be passed and heated, during

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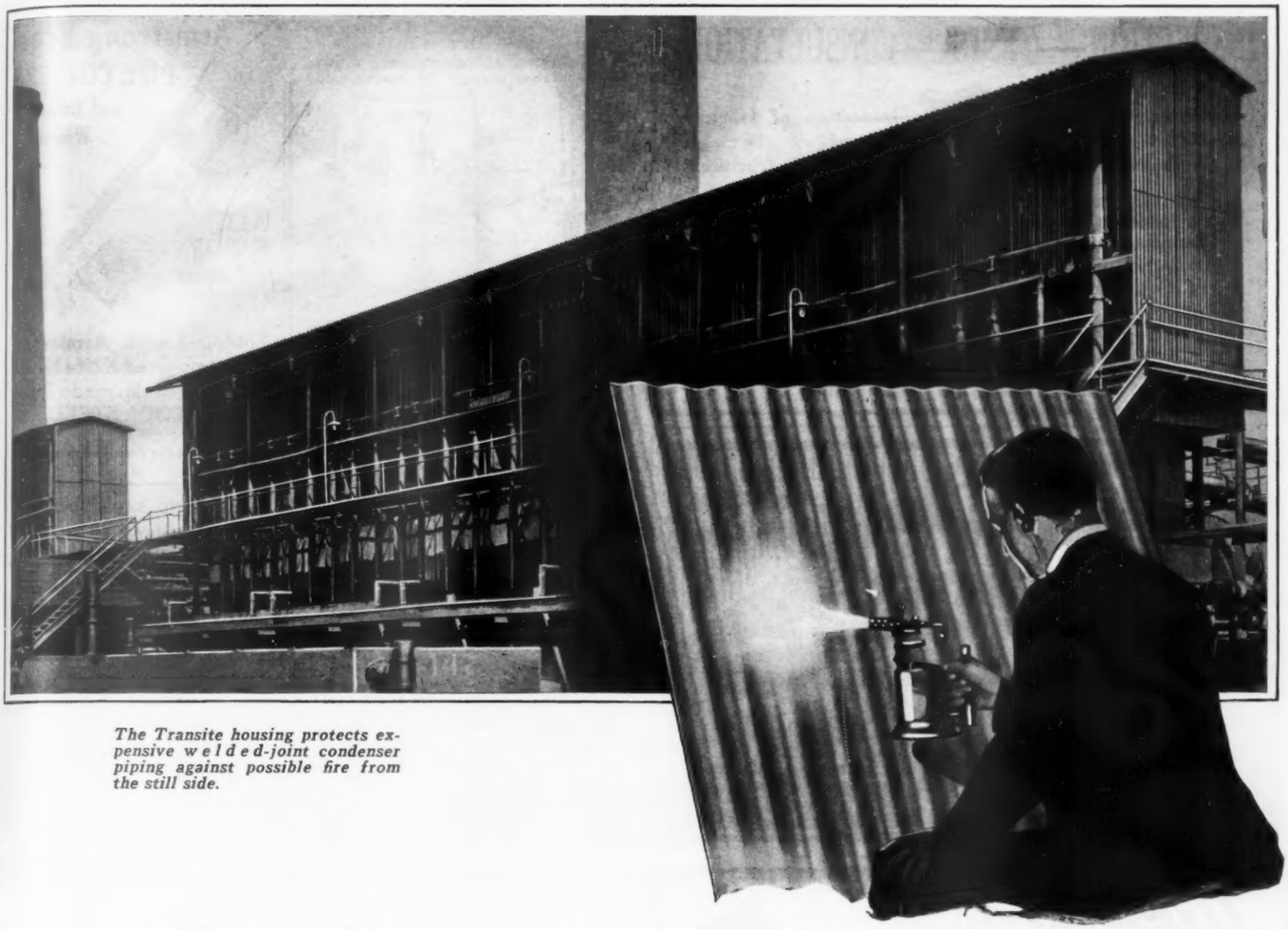

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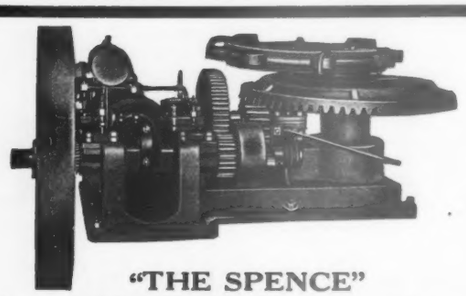

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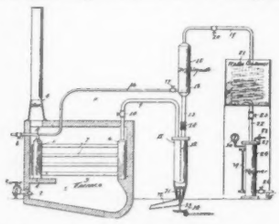
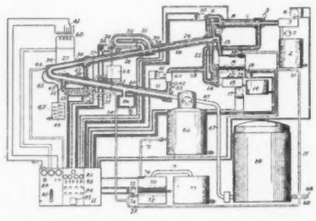
passage therethrough, to a cracking temperature, a vertically disposed expansion separating chamber, means for delivering heated oil constituents from said tube still to said separating chamber, means within said separating chamber for causing said



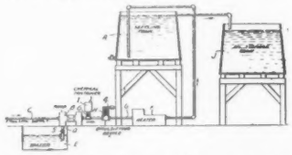
heated constituents to pass downwardly throughout substantially the entire length thereof and then to rise vertically therethrough, a driven rotary valve at the lower end of said chamber for discharging liquid oil and precipitated carbon therefrom, and means for taking off vapors from the upper end of said chamber.

1,616,515. Cracking Liquid Hydrocarbons. Hans O. Swoboda and Earl M. Richards, Pittsburgh, Pa., assignors to H. O. Swoboda, Inc., Pittsburgh, Pa., a corporation of Pennsylvania. Filed July 6, 1922. Serial No. 573,080. 9 claims. (Cl. 196—63.)



1. In a cracking system, a concentric tubular conduit, means for circulating steam through an inner tube, means for dropping hydrocarbon into the steam, electric heating means employing a portion of the conduit as resistance, and a heat interchanger utilizing a heat exchange medium other than hydrocarbon to withdraw heat from the cracked material and supply it to the heating portion of the system, substantially as described.

1,617,739. Process for Breaking Water-in-Oil Emulsions. Charles C. Averill, Houston, Tex., assignor to William S. Barnickel, Webster Groves, Mo., a corporation of Missouri. Filed November 21, 1925. Serial No. 70,538. 3 claims. (Cl. 196—3.)



1. A process for breaking water-in-oil emulsions, characterized by adding to the emulsion an amount of water at least equal in volume to the quantity of the emulsion, subjecting said mixture to an emulsifying operation and also subjecting said mixture to the action of a chemical demulsifying agent which tends to cause the emulsion to break and separate into its component parts.

1,618,427. Cracking Apparatus. Emanuel W. Hartman, Los Angeles, Calif., assignor to Hartman Interests, Inc., Los Angeles, Calif., a corporation of Nevada. Filed June 9, 1923. Serial No. 644,379. 7 Claims. (Cl. 196—104.)

1. A crude oil cracking apparatus comprising a still in which the oil to be cracked is heated, coils in which the oil passing from said still is superheated, a pump, a nozzle through which the oil from said coils is forced by said pump, a retort into which said nozzle opens, a collecting chamber, pipes connecting said chamber with said still and said retort

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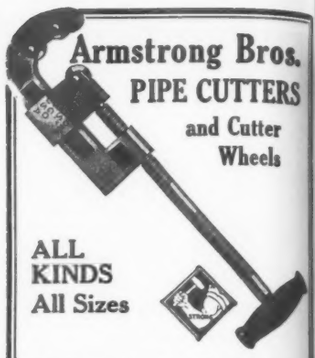

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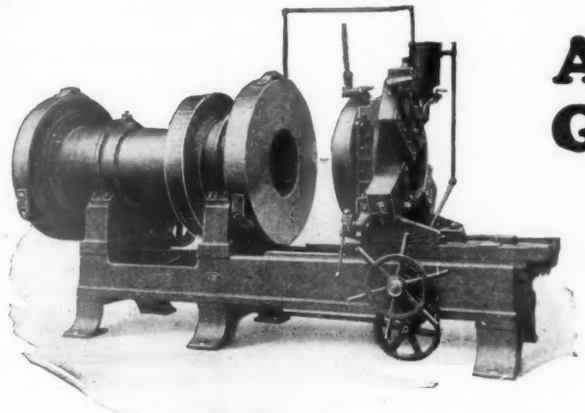

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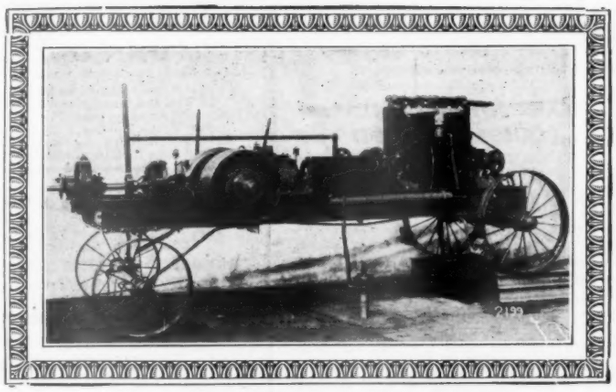

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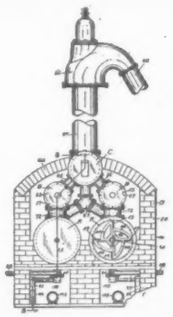
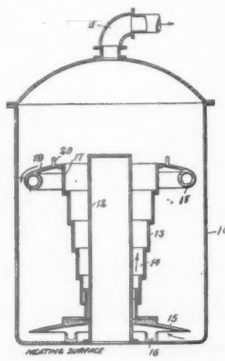
through which the gasoline carrying gases cracked from the treated oil pass, a furnace enclosing said still, coils, retort, and



pipes and means in said furnace for heating the enclosed parts.

1,616,079. Method and Apparatus for Distilling Liquids. William F. Downs, Chatham, N. J.; Mary Gardner Downs, administratrix of said William F. Downs, deceased. Filed December 24, 1921. Serial No. 524,566. 14 claims. (Cl. 196—125.)



1. A vaporizing apparatus including a chamber having a partition comparatively close to one wall thereof to form a liquid passage open at its upper and lower ends, said wall being adapted for the application of heat thereto to induce a circulation of liquid upwardly through said passage, and means for maintaining the upper end of said passage and the liquid level in said chamber at approximately predetermined relative elevations.

CAPTAIN JOHN TONKIN FOUR SCORE AND TEN

OIL CITY, Pa., Mar. 26.—Capt. John Tonkin, president of the Central Kentucky Natural Gas Co. and a prominent man in the oil and gas world, celebrated his ninetieth birthday anniversary at his home in Oil City March 20. He came to Tidioute in 1868 at the time of the oil excitement and a few years later became connected with the Standard Oil Co. in Ohio. He was engaged in Standard Oil business until his retirement 11 years ago since which time he has devoted himself to his personal gas interests.

RULING ON DEPLETION

WASHINGTON, D. C., Mar. 26.—In the case of the National Oil and Gas Co., petitioner, vs. Commissioner of Internal Revenue, respondent, the Board of Tax Appeals has held that although the share of the petitioner of the oil produced during 1919 was 26,843.56 bbls., as there was returned as income the proceeds from only 23,729.97 bbls., allowance for depletion could only be had on the smaller number of bbls. returned. This action followed the decision in the appeal of R. M. Waggoner in which it was held that in such circumstances depletion could be taken only upon the basis of the oil sold, the proceeds of which were included as income.

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for January

Runs

Company—	Month	Dy.Ave.
*Prairie P. L. Co.	4,340,000	140,000
Gulf P. L. Co.	1,378,740	44,476
Texas P. L. Co.	729,724	23,539
Magnolia Pet. Co.	1,618,217	52,201
Empire P. L. Co.	978,713	31,571
Cosden P. L. Co.	874,641	28,214
Sinclair P. L. Co.	2,021,913	65,223
*Other lines	12,152,000	392,000
Total January	24,093,948	777,224
Total December	21,543,154	694,941
Difference	2,550,794	82,283

Shipments

Company—	Month	Dy.Ave.
†Prairie P. L. Co.	4,850,793	156,477
Gulf P. L. Co.	1,272,109	41,036
Texas P. L. Co.	552,425	17,820
Magnolia Pet. Co.	1,462,529	47,178
Empire P. L. Co.	718,643	23,182
Cosden P. L. Co.	889,518	28,694
†Sinclair P. L. Co.	2,615,441	84,369
*Other lines	10,312,000	332,000
Total January	23,273,458	750,756
Total December	20,901,529	674,242
Difference	2,371,929	76,514

Stocks

*Prairie Oil & Gas Co.	28,195,000
*Prairie P. L. Co.	2,000,000
Gypsy Oil Co. and Gulf P. L.	7,421,895
The Texas Company	3,140,163
Magnolia Petroleum Co.	3,284,287
Empire P. L. Co.	2,588,657
Cosden P. L. Co.	2,314,159
*Sinclair Crude Oil Purchasing Co.	18,400,000
Carter Oil Co.	14,016,439
*Other lines	9,000,800
Total January	90,410,600
Total December	88,414,470
Difference	1,996,130

*Estimated. †Sinclair shipments include Wyoming and Texas oil, and Prairie shipments include Texas oil.

Note—Stocks do not include approximately 3,600,000 bbls. of crude oil held in private tank farms and leases, and 2,250,000 bbls. of Texas Panhandle crude in storage in Kansas and Oklahoma.

EASTERN PIPELINES
Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan. '27	Feb. '27
Nat. Transit	131,633.26	139,482.60
S. W. Pa. P. L.	91,671.32	86,131.61
Eureka P. L.	356,257.54	360,073.04
Buckeye P. L. (Macksburg)	306,320.21	306,133.22
Buckeye P. L. (Cleveland)	8,898.60	9,641.18
Buckeye P. L. (Lima, etc.)	105,316.84	118,280.53
Indiana P. L.	7,885.73	10,308.90
Cumberland P. L.	269,494.29	253,098.35
N. Y. Transit	20,624.12	20,720.01
Tide Water P. L.	164,816.27	166,244.50
Pure Oil	181,623.77	150,656.96
Emery P. L.	51,721.92	50,806.49
Paragon Dev.	29,152.24	27,518.82
Pittsburgh P. L.	4,492.56	5,450.00
Stoll Ref.	12,571.47	11,799.41
Total	1,742,480.14	1,716,345.62
Daily average	56,209.04	61,298.06

Note: Indian Refining Co. also reported other receipts of 318,692.38 bbls. Paragon Refining Co. had other receipts of 111,806.74 bbls. Paragon Development had other receipts of 1,727.51 bbls. Pure Oil had other receipts of 23,458.34 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan. '27	Feb. '27
Nat. Transit	339,689.42	301,540.53
S. W. Pa. P. L.	376,678.56	332,520.45
Eureka P. L.	185,046.54	189,772.61
Buckeye P. L. (Macksburg)	152,046.86	143,321.85
Buckeye P. L. (Cleveland)	728.46	735.84
Buckeye P. L. (Lima, etc.)	836,059.68	766,275.55
Indiana P. L.	996,930.49	899,418.14
Cumberland P. L.	170,916.10	149,258.83
N. Y. Transit	268,721.23	134,606.31
Northern P. L.	146,042.27	149,470.27
Tide Water P. L.	142,906.68	118,783.21
Pure Oil	185,495.89	187,941.11
Emery P. L.	56,726.35	48,549.33
Paragon Ref.	162,514.12	125,377.69
Indian Ref.	327,021.57	296,038.10
Paragon Dev.	26,199.57	29,126.84
Pittsburgh P. L.	4,316.92	6,213.32
Total	4,378,040.11	3,878,949.98
Daily average	141,227.10	138,533.93

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky, at the close of January and February were as follows:

	Jan. '27	Feb. '27
Nat. Transit	958,639.67	1,009,705.83
S. W. Pa. P. L.	783,090.22	746,374.61
Eureka P. L.	1,283,959.42	1,326,061.87
Buckeye P. L. (Macksburg)	418,744.17	435,819.09
Buckeye P. L. (Cleveland)	60,087.54	76,981.10
Buckeye P. L. (Lima, etc.)	3,048,045.04	3,227,532.22
Indiana P. L.	563,842.08	584,982.76
Cumberland P. L.	584,088.08	606,176.77
Southern P. L.	418,089.38	420,485.22
N. Y. Transit	576,728.60	661,277.88
Northern P. L.	423,641.24	426,553.78
Pure Oil	472,351.27	459,193.89
Emery P. L.	6,125.26	6,932.77
Paragon Ref.	38,841.67	24,907.55
Indian Ref.	66,887.83	91,489.53
Paragon Dev.	10,670.92	11,007.61
Pittsburgh P. L.	4,170.61	3,679.88
Total	9,718,003.00	10,119,162.36
Increase	263,490.81	401,159.36

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of January and February, showing the gross stocks of the above fields:

	Jan. '27	Feb. '27
Pennsylvania	3,703,521.72	3,708,705.44
Lima	741,567.39	798,170.33
Kentucky	1,034,892.99	1,056,674.37
Mid-Continent	4,134,204.33	4,451,184.17
Illinois	103,816.57	104,428.05
Total	9,718,003.00	10,119,162.36

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1924	1925	1926	1927
January	62,638	56,831	55,630	56,209
February	68,023	60,606	60,394	61,298
March	68,721	60,575	61,644	.....
April	71,058	63,062	63,019	.....
May	63,942	59,217	60,580	.....
June	63,230	61,270	64,131	.....
July	64,208	62,639	63,206	.....
August	59,942	59,696	61,816	.....
September	62,930	62,510	64,639	.....
October	64,976	60,995	62,704	.....
November	56,282	59,350	61,774	.....
December	55,814	57,974	58,755	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1924	1925	1926	1927
January	145,518	157,889	156,056	141,227
February	148,732	160,863	159,488	138,534
March	147,098	154,591	150,279	.....
April	147,611	151,429	152,371	.....
May	134,997	146,995	160,998	.....
June	143,010	149,467	160,257	.....
July	124,187	161,338	160,945	.....
August	123,120	161,730	151,929	.....
September	127,325	156,719	158,915	.....
October	123,170	145,388	161,132	.....
November	124,400	143,582	152,668	.....
December	151,392	150,162	136,428	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1925	1926	1927
January	11,353,276	9,859,170	9,718,0
February	11,192,924	9,579,354	10,119,1
March	11,158,297	9,438,292	.....
April	11,062,082	9,805,851	.....
May	11,207,562	9,531,757	.....
June	11,093,796	9,585,904	.....
July	11,067,453	9,734,687	.....
August	10,974,481	9,668,947	.....
September	10,781,753	9,433,732	.....
October	11,086,850	9,269,806	.....
November	11,068,158	9,257,667	.....
December	10,458,445	9,454,512	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line Co. at the close of business for the months named and accounted in the stocks and averages reported above.

1926—	Runs	Shipmts.	Stocks
February	2,580.23	2,776.19	12,819.4
March	2,754.62	1,732.77	13,841.3
April	3,137.40	4,519.68	12,459.0
May	2,933.29	2,096.35	13,296.9
June	3,217.62	1,655.15	14,858.4
July	3,025.86	4,075.11	13,809.1
August	2,886.59	2,121.21	14,574.5
September	2,788.18	3,377.06	13,983.6
October	2,991.86	2,307.75	14,671.2
November	2,810.60	1,664.55	15,817.3
December	2,847.52	5,561.11	13,103.7
1927—			
January	2,641.54	1,470.42	14,274.8
February	2,764.30	1,082.82	15,956.3

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, March 1	2,661,986.6
Runs from wells	570,406.2
Other receipts	426,906.6
Regular deliveries	402,206.2
Other deliveries	591,721.3

The amount of Illinois oil run by the Tide Water Pipe Co. in February was 28,430.44 bbls. and deliveries were 74,750.3 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1926—	Runs	Deliveries
February	632,611.99	506,310.6
March	753,300.74	524,625.9
April	610,957.04	487,604.0
May	682,416.67	498,456.9
June	693,102.34	558,054.9
July	713,490.66	490,092.3
August	701,795.92	555,766.5
September	688,798.66	516,083.9
October	681,648.96	531,467.3
November	651,263.33	498,439.3
December	668,909.58	587,947.6
1927—	Runs	Deliveries
January	621,421.03	530,085.9
February	595,831.16	476,950.7

The Tide Water Pipe Co., Ltd., has delivered in February, 249,851.65 bbls.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
October	13,742	10,258	27,000	5,936	18,556	85,290	.....	.....	.....	742	742	86,032
November	6,400	16,600	27,633	22,533	17,300	91,467	.....	.....	.....	.....	.....	91,467
December	13,645	7,129	39,645	7,419	9,774	77,613	.....	.....	.....	.....	.....	77,613
January	5,097	8,258	26,290	15,932	14,807	70,365	.....	.....	.....	806	806	71,171

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
October	20,452	6,935	67,542	5,516	20,916	121,323	10,129	29,516	3,839	5,419	48,930	170,253
November	14,867	7,167	55,967	5,700	27,433	111,133	18,133	35,200	2,500	2,900	58,733	169,866
December	12,484	10,613	56,129	7,452	24,064	110,742	12,548	40,742	2,903	10,839	67,032	177,774
January	16,032	8,226	64,387	4,065	31,064	123,774	7,903	43,629	.....	4,123	55,645	179,419

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS

(IN BARRELS)

1926—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
February:	Month	17,166,963	12,392,016	9,943,232	2,891,812	4,756,836	1,584,184	2,778,605	2,931,000	54,441,648
	Daily average	612,999	442,572	355,115	103,279	169,887	56,578	98,236	104,678	1,944,345
March:	Month	18,825,786	14,312,886	11,014,238	3,334,887	5,115,837	1,889,636	3,161,250	3,349,000	61,003,520
	Daily average	608,283	461,706	355,298	107,577	165,027	60,956	101,976	108,032	1,967,536
April:	Month	18,091,771	14,468,190	10,799,760	3,330,120	5,127,610	1,959,570	3,231,404	3,183,000	60,191,325
	Daily average	602,059	482,273	359,992	111,004	170,917	65,319	104,239	106,100	2,006,327
May:	Month	18,667,144	14,507,808	11,940,797	3,516,640	5,482,939	2,231,938	3,459,489	3,317,000	63,122,955
	Daily average	602,166	467,968	385,187	113,440	176,869	71,998	111,596	107,000	2,036,224
June:	Month	18,269,417	14,073,510	11,782,200	3,346,470	5,064,760	2,206,830	3,437,905	3,365,000	61,546,092
	Daily average	608,981	469,117	392,740	111,549	168,822	73,561	114,597	112,167	2,051,536
July:	Month	18,743,199	14,657,482	13,983,759	3,582,267	5,019,892	2,173,813	3,336,664	3,420,000	64,917,076
	Daily average	604,619	472,822	451,089	115,557	161,932	70,123	10..634	110,323	2,094,099
August:	Month	18,765,080	14,618,236	17,093,586	3,681,436	4,878,191	2,190,739	3,467,697	3,329,500	68,024,465
	Daily average	605,325	471,556	551,406	118,756	157,361	73,896	111,538	107,726	2,194,338
September:	Month	18,104,954	14,466,510	17,580,100	3,650,640	4,603,230	2,079,840	3,141,123	3,330,000	66,755,815
	Daily average	603,498	482,217	586,003	115,002	153,441	69,328	104,704	111,000	2,225,194
October:	Month	18,966,058	15,720,689	19,001,388	3,714,637	4,625,138	2,166,559	3,071,720	3,398,000	70,664,189
	Daily average	611,808	507,119	612,948	119,837	149,198	69,889	99,088	109,613	2,279,499
November:	Month	19,173,128	16,876,950	18,598,160	3,593,490	4,299,480	2,054,911	2,842,587	3,216,000	70,649,706
	Daily average	639,104	562,565	619,772	119,783	143,316	68,497	94,752	107,200	2,354,990
December:	Month	20,276,950	17,882,508	19,753,591	3,654,156	4,266,189	2,018,734	2,658,301	3,313,000	73,823,839
	Daily average	654,095	576,868	637,213	117,876	137,619	65,120	85,752	106,871	2,381,416
1927—										
January:	Month	20,184,872	19,030,745	18,546,990	3,668,323	4,076,469	1,905,570	2,610,303	3,332,500	73,355,772
	Daily average	651,125	613,895	598,290	118,333	131,499	61,471	84,203	107,500	2,366,315
	Total 12 months	225,232,322	183,007,130	180,032,801	41,764,298	57,316,471	24,462,324	37,187,048	39,494,000	788,496,394
	Daily average	617,075	501,389	493,241	114,423	157,031	67,020	101,852	108,203	2,160,366

Emergency Service

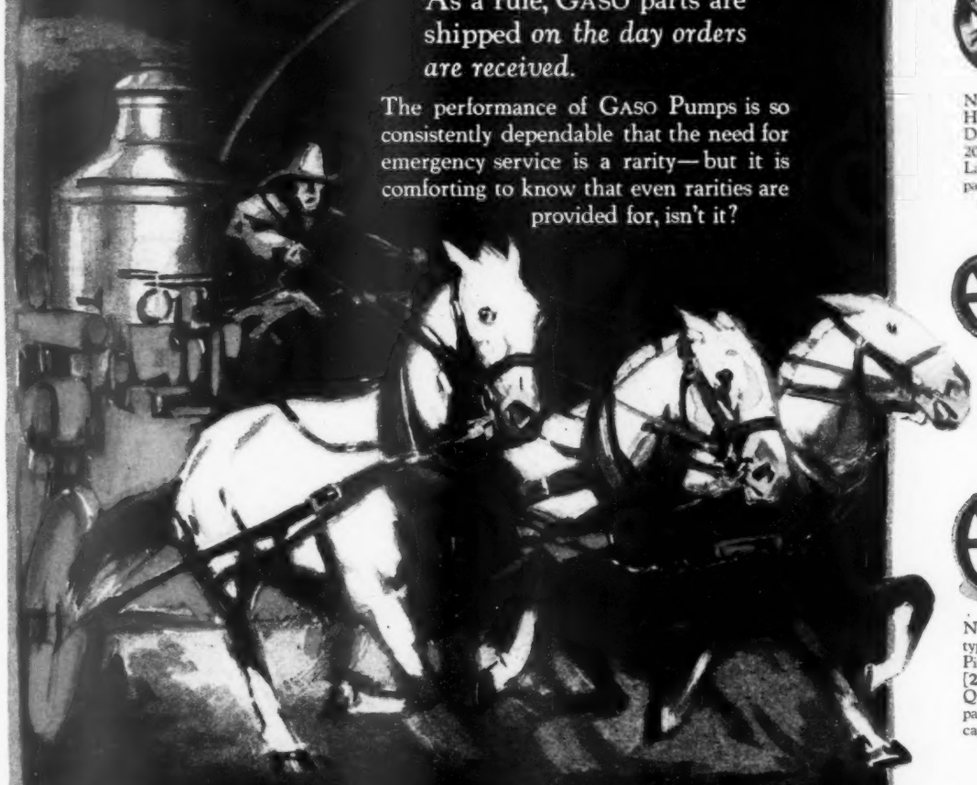
In seeking to guard your company against the possibility of serious breakdowns in pumping service, here are three things to keep in mind—

GASO Pumps have *fewer* and *stronger* parts.

The GASO plant is in *Tulsa*.

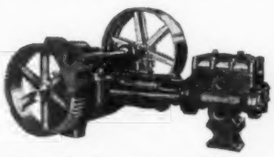
As a rule, GASO parts are shipped *on the day orders are received.*

The performance of GASO Pumps is so consistently dependable that the need for emergency service is a rarity—but it is comforting to know that even rarities are provided for, isn't it?



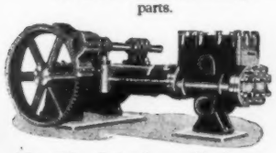
GEAR-DRIVEN PUMPS

Geared to Long Life and Real Service



No. 501—A popular model Gaso Horizontal Duplex Piston Gear-Driven Power Pump, designed for 200 to 800 pound working pressures. Large, direct, unobstructed fluid passages and valve areas; simple design; *fewer* and *stronger* parts.

No. 507—Gaso Horizontal Duplex Piston Gear-Driven Power Pump, especially suited to *suction* service. Ideal for large capacity low-pressure work. Valves and parts easily accessible. *Fewer* and *stronger* parts.



No. 508—*Interchangeable liner* type of Gaso Horizontal Duplex Piston Gear-Driven Power Pump [200 to 800 pound pressures]. Quickly changeable from large capacity low-pressure service to small capacity high-pressure service. *Fewer* and *stronger* parts.

* * * * *

GASO PUMP & BURNER MFG. CO.

Tulsa · Oklahoma

GASO PUMPS

for every oil industry need

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DRILLING BITS

SOUND business judgment dictates the selection of Bridgeport's Hychrome Drilling Bits—the bits with the guaranteed pins. Because we KNOW they have more elasticity, greater tensile strength and are harder than bits made of the best grade of steel, we

Guarantee

that the pin on our Hychrome Drilling Bit will not "jump off," "break off," or "pull off" under ordinary drilling conditions. If a pin does pull or break or jump off we will either refund your money or replace the bit.

We give a written guarantee with each set of Bridgeport Hychrome Drilling Bits.

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WICHITA KANSAS